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LOUISIANA

STATEWIDE WILDLIFE DEVELOPMENT

ANNUAL PROGRESS REPORT,
W-29-R-13 & FW-2-R-7
Pittman-Robertson Projects

1965-66

LOUISIANA WILD LIFE AND FISHERIES COMMISSION
CAPITOL STATION
BATON ROUGE, LOUISIANA 70804

STATE: Louisiana

PROJECT: W-29R-13

PERIOD: July 1, 1965-June 30, 1966

ANNUAL PROGRESS REPORT

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RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-2 Title: General Condition of Deer Herds

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Deer checking stations were operated on seventeen (17) Louisiana game management areas during the 1964 managed hunts. Data collected at these checking stations included ages, sex, weights, antler development, fawn-adult ratios, and hunter success ratios. All such physical data has been tabulated and analyzed. These data are compared to similar data obtained on previous hunts. A total of 46,213 hunters harvested 3,341 deer on Louisiana game management areas during the 1965 hunting season. A brief deer aging school was held for all technical personnel prior to the opening of deer season.

Recommendations: Continued effort should be made to refine our techniques for gathering physical data from our deer herds. Deer checking stations are, without a doubt, the most important source of accurate physical data concerning the white-tailed deer. Efficient management can be achieved only if we employ all available information relating to our deer herds. We should continue to stress the extreme importance of collecting accurate data, and every effort should be made to increase the amount of reliable physical data collected from our deer herds. As in the past, technicians should be required to attend a deer aging school prior to the annual deer season. At this time technicians should also be familiarized with all data collecting techniques and the associated records to be kept.

Objectives: It is the objective of this study to analyze the physical data from deer killed on the game management areas within the state, and to correlate the physical conditions to age classes, population densities, and fawn-adult ratios.

Techniques Used: Deer checking stations were operated on all game management areas having deer seasons except Bodcau, Lutcher-Moore, and Caney Game Management Areas. Ages, weights, sex, and antler development was recorded for as many deer as possible from each of the game management areas. Udders of females were checked for evidence of lactation. Simultaneous openings of all game management areas having deer seasons created a shortage of technical personnel and, consequently, many non-technical people were used in the operation of deer checking statons, thereby making it impossible to secure valid information from all of the deer killed on the game management areas. Biologists were assigned only to checking stations where a heavy deer kill was anticipated. The only data collected by non-technical personnel that is used in this report is the total number and sex of the deer coming through their check stations.

All weight data is broken into three categories: Live weight, empty weight, and field dressed weight. Live weight is defined as the weight of the complete intact deer. Empty weight is considered to be the weight of the complete animal with all viscera removed. A deer with only the stomach and intestines removed was considered to be field dressed. All weight data is broken down by sex and age. The mean weight for each weight category in each age class is calculated. Mean weights were then converted to live weights by the application of generally accepted conversion factors. Mean field dressed weights were converted to live weights by multiplying by the conversion factor of 1.25. Mean empty weights were multiplied by the factor 1.33 to obtain computed live weights. Once all three weight categories were placed in common terms, we calculated the average computed live weight for each age class. By presenting weight data in this manner, we are able to make comparisons

between the various management units and data categories. This method of treatment also strengthens the size of the sample.

Deer ages were grouped into three categories for the purpose of this report. In processing data from areas where any-deer hunts were held, ages were recorded as either 6 months, 1½ years, or 2½ years. The first two of these categories are exact ages; the latter is a composite group containing all deer of age 2½ years or older. The purpose of this type of age grouping is to increase the accuracy of our age-weight correlations. Since it is felt that many of the errors made in aging deer are made in the age groups of 2½ years and older deer, the consolidation of the age classes past the 1½ year age group would tend to minimize the effect brought about by aging errors. All previous data has been converted to this new system of grouping for the purpose of comparison.

A deer aging school was held prior to the managed hunts. This afforded technical personnel an opportunity to familiarize themselves with aging criteria.

In cases where bucks-only hunts were held, only the 1½ year and 2½ year age classes were used due to the fact that 6 month old male deer did not have antlers that met the legal minimum of three inches.

All Louisiana game management areas having deer seasons were opened on November 26, 1965, for the managed deer hunts with the exception of Zemurray Park Game Management Area, which opened for a special hunt on December 6, 7, and 8. Hunters on this area were limited to 200 per day. These hunters were selected by public drawing in advance of this special hunt. Those hunters selected received non-transferable permits good for one day of any-deer hunting. On other game management areas, hunters were required to surrender their basic hunting license daily to permit stations in exchange for a daily permit. Only still hunting was permitted. All game management areas having deer seasons had any-deer seasons except Bodcau, Caldwell, Caney,

East Carroll, Georgia Pacific, Lutcher-Moore, West Bay, and Thistlethwaite Game Management Areas. All game management areas having any-deer seasons were assigned a limit guide number. On the day that the total kill on the respective area reached this number, any-deer hunting was terminated and the remainder of the allotted open season was limited to bucks-only. In most cases the allotted open season for game management areas was five days; however, Fort Polk Game Management Area had three days of any-deer hunting, plus bucks-only hunting concurrent with open season in adjacent areas; Russell Sage Game Management Area had one day of any-deer hunting and the rest of the season was bucks-only concurrent with adjacent outside seasons; Bodcau, Caney, and Lutcher-Moore Game Management Areas were opened concurrently with the seasons in adjacent areas.

Checking stations were operated for five days on most of the game management areas. However, Fort Polk, Thistlethwaite and Zemurray Park Game Management Areas operated check stations for only three days. Bodcau and Caney Game Management Areas did not operate deer checking stations. Bodcau, Caney, and Lutcher-Moore Game Management Areas were hunted by season permits. Fort Polk Game Management Area was hunted with season permits following the three day any-deer season. Russell Sage Game Management Area was hunted with season permits following the one day any-deer season. Chicago Mill, East Carroll, and Jackson-Bienville Game Management Areas were also opened for a five-day bucks-only season from December 18 through 22. Hunting during this season on these areas was done by season permits.

Findings: All data collected on managed deer hunts held during the 1965 season has been processed and is presented in tabular form. The following tables give a summary of the results of the managed hunts on some of the game management areas.

Prepared by:	Approved by:
Dan Dennett, Jr. Study Leader	Robert E. Murry Project Leader

Date ____________________

TABLE I
COMPUTED LIVE WEIGHTS BY AGE CLASS OF DEER KILLED ON
SOME LOUISIANA GAME MANAGEMENT AREAS DURING THE
1964 AND 1965 MANAGED HUNTS

AREA	SEX	YEAR	AGE		
			6 Mos.	1½	2½+
Alexander State Forest	Male	1964	(22)	(10)	(24)
			50.6	84.0	140.63
	Male	1965	(15)	(11)	(15)
			51.3	97.2	134.0
	Female	1964	(14)	(14)	(43)
			46.2	76.3	86.4
	Female	1965	(12)	(9)	(18)
			51.6	73.0	87.1
Catahoula GMA	Male	1974	(50)	(51)	(71)
			52.8	84.5	120.2
	Male	1965	(51)	(55)	(56)
			54.1	89.3	126.8
	Female	1964	(46)	(28)	(100)
			49.8	75.4	89.2
	Female	1965	(66)	(31)	(106)
			49.7	77.0	87.6
Chicago Mill GMA	Male	1964	----	(37)	(112)
			----	103.5	177.1
	Male	1965	(164)	(212)	(125)
			58.9	121.9	176.5
	Female	1964	---- Bucks-only in 1964		
	Female	1965	(185)	(119)	(284)
			53.3	102.5	110.2
Evangeline GMA	Male	1964	(5)	(8)	(11)
			63.0	91.1	136.6
	Male	1965	(22)	(5)	(12)
			61.6	95.3	124.7
	Female	1964	(13)	(9)	(13)
			58.1	79.8	88.6
	Female	1965	(9)	(11)	(20)
			50.1	84.8	83.6
Fort Polk GMA	Male	1964	(19)	(5)	(8)
			50.7	90.4	125.7
	Male	1965	(54)	(30)	(26)
			52.9	96.6	120.2
	Female	1964	(26)	(10)	(25)
			49.8	73.7	89.2
	Female	1965	(49)	(29)	(48)
			51.0	74.5	84.7
Georgia Pacific GMA	Male	1964	----	(18)	(185)
			----	94.1	134.6
	Male	1965	----	(101)	(62)
			----	93.9	120.5
	Female	1964	---- Bucks-only in 1964		
	Female	1965	---- Bucks-only in 1965		

Table I (Continued)

AREA	SEX	YEAR	AGE		
			6 Mos.	1½	2½+
Jackson-Bienville GMA	Male	1964	(26) 61.0	(28) 110.6	(11) 185.7
	Male	1965	(24) 59.3	(29) 119.0	(27) 160.3
	Female	1964	(26) 48.0	(9) 93.7	(38) 106.1
	Female	1965	(26) 56.7	(18) 96.8	(48) 112.0
Red Dirt GMA	Male	1964	(26) 51.1	(44) 88.3	(42) 122.5
	Male	1964	(49) 54.9	(40) 90.3	(38) 125.5
	Female	1964	(50) 48.7	(39) 79.3	(84) 91.6
	Female	1965	(32) 47.8	(20) 75.6	(74) 88.8
Union GMA	Male	1964	(11) 61.1	(18) 117.9	(17) 151.1
	Male	1965	(10) 61.5	(23) 105.2	(14) 149.2
	Female	1964	(7) 54.6	(6) 94.3	(15) 106.1
	Female	1965	(6) 65.4	(12) 90.4	(18) 105.0
West Bay GMA	Male	1964	(38) 49.7	(51) 80.3	(41) 107.4
	Male	1965	---- ----	(31) 91.6	(53) 107.8
	Female	1964	(55) 44.8	(80) 75.6	(61) 82.6
	Female	1965	---- Bucks-only in 1965		

NOTE: Age-weight correlations were made only on those areas where sufficient data was collected.

TABLE II
HUNTER SUCCESS RATIOS FOR SOME LOUISIANA GAME MANAGEMENT AREAS DURING THE 1964 AND 1965 DEER HUNTING SEASON

	1964			1965		
GAME MANAGEMENT AREA	NUMBER OF HUNTERS	NUMBER OF DEER KILLED	HUNTER SUCCESS RATIO	NUMBER OF HUNTERS	NUMBER OF DEER KILLED	HUNTER SUCCESS RATIO
Alexander Forest	1343	142	1/9	1663	83	1/20
Caldwell	641*	37	1/17	1034*	59	1/18
Catahoula	4206	347	1/12	4885	359	1/14
Chicago Mill	9247*	256	1/36	12867	1617	1/8
East Carroll	357*	5	1/75	743	25	1/30
Evangeline	1420	62	1/23	1998	83	1/24
Fort Polk	1531**	93	1/16	3103	249	1/12
Georgia-Pacific	6490*	317	1/20	5838*	165	1/35
Jackson-Bienville	2847	144	1/20	3132	174	1/18
Red Dirt	3121	290	1/11	3724	258	1/14
Russell Sage	682	34	1/20	833	43	1/19
Sabine	540	26	1/21	475	24	1/20
Thistlewaite	No season in 1964			213*	1	1/213
Union	856	76	1/11	1119	83	1/13
West Bay	5607	335	1/17	4130*	86	1/48
Zemurray Park	496**	37	1/13	456**	32	1/14
TOTAL	37375	2201	1/17	46213	3341	1/14

* Bucks-only hunting. (other areas one or more days either sex)

** Manner in which hunts were conducted does not reflect an accurate measure of hunter success.

TABLE III
DEER HERD REPRODUCTION RATIOS
Showing Number of Fawns Per 100 Does of Age 2½ Years and Older

	CHICAGO MILL GMA		CATAHOULA GMA		EVANGELINE GMA		JACKSON BIENVILLE GMA		RED DIRT GMA		WEST BAY GMA		UNION GMA	
	1964	1965	1964	1965	1964	1965	1964	1965	1964	1965	1964	1965	1964	1965
ADULT DOES	---*	284	100	107	13	20	38	48	84	74	61	---*	15	18
FAWNS	---	349	96	109	18	31	52	50	76	81	93	---	18	16
RATIO	---	123	96	102	138	155	137	104	90	109	152	---	120	89

* Bucks-only during annual season - reproduction rate unknown.

TABLE IV

AVERAGE NUMBER OF ANTLER POINTS** BY AGE GROUP OF DEER KILLED ON SOME LOUISIANA GAME MANAGEMENT AREAS*** DURING THE 1965 MANAGED DEER HUNTS

GAME MANAGEMENT AREA	AGE GROUP	
	1½	2½+
Alexander Forest	(11) 3.9	(15) 7.2
Caldwell	(9)* 3.2	(25) 6.1
Catahoula	(51) 3.0	(54) 6.7
Chicago Mill	(171) 2.9	(114) 6.7
Evangeline	(6) 2.5	(12) 7.2
Fort Polk	(25) 4.1	(25) 6.3
Georgia Pacific	(100) 2.5	(62) 5.3
Jackson-Bienville	(26) 3.1	(27) 6.0
Red Dirt	(40) 2.3	(38) 5.7
Russell Sage	(7) 4.6	(6) 7.0
Union	(22) 3.4	(13) 6.5
West Bay	(31) 2.6	(53) 6.2

* Denotes sample size.

** Points are considered to be projections from main bean having a minimum length of 1 inch.

*** Only those areas having reasonable samples are considered in tabulating antler development.

TABLE V

INCIDENCE OF LACTATION AMONG 1½ YEAR OLD FEMALE WHITE-TAILED DEER AS OBSERVED ON SOME LOUISIANA GAME MANAGEMENT AREAS DURING THE 1965 HUNTING SEASON

GAME MANAGEMENT AREA	NUMBER OF DEER CHECKED	NUMBER OF DEER LACTATING	PERCENT LACTATING
Alexander Forest	5	1	20.0
Catahoula	25	2	8.0
Chicago Mill	60	6	10.0
Evangeline	11	3	27.3
Fort Polk	24	10	41.7
Jackson-Bienville	12	0	0.0
Red Dirt	13	3	23.0
Union	14	0	0.0

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-6 Title: Annual Inventory of Deer Areas

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Deer range surveys were made in some areas and the findings made available to the Louisiana Wildlife and Fisheries Commission.

Recommendations: It is recommended that the inventory of deer areas be continued. Recommendations for management of each area were incorporated in each report of the area inventoried.

Objectives: Inventory areas for deer management information. The specific objectives are: (1) To learn as much as possible regarding the various deer ranges of the state and the herds that occupy them; (2) To recommend management measures for all deer ranges in the state; and (3) To compile a record of deer management regulations for various ranges during the recent history of management.

Techniques Used: The techniques used are taken from previously prepared recommended procedures for making deer range surveys and the guide for deer range survey reports.

The surveys are made by the investigator going into the area, and as he travels (by boat or vehicle) making stops and walking perpendicular to the line of travel. Stops are made as often as deemed necessary by the investigator. At each stop notes are made of the occurrence and use of browse and sign such as tracks, droppings, livestock, and dogs.

Local people are contacted as well as enforcement agents, Forestry Commission employees,

and industrial foresters, for information concerning description of area, factors adversely affecting deer, factors that affect hunting, and economic liability of deer in the area.

A narrative report is prepared on each area surveyed. The report includes description of area, history of the deer herd and hunting seasons, factors adversely affecting deer, factors that affect hunting, condition of the range, condition of herd (if determined), economic liability of deer in area, recommendations for coming season, the chances of getting the herd managed along sound biological principles, and an estimate of needs to facilitate deer management in the area. All the deer range survey reports were forwarded to the Fish and Game Division office where the information is available for use in the setting of deer hunting regulations.

Findings:

Because of space requirements, the deer range survey reports covering work accomplished during this period will not be reproduced here.

Deer range surveys were made and reported on in all or portions of the following parishes: Caddo, Bossier, DeSoto, Claiborne, Rapides, Grant, Vernon, Sabine, Natchitoches, Winn, Concordia, West Feliciana, LaSalle, Caldwell, Catahoula, Franklin, Beauregard, Allen, Calcasieu, Avoyelles, St. Landry, St. Martin, Lafayette, Pointe Coupee, Iberville, Iberia, Jefferson, Plaquemine, St. John The Baptist, St. James, St. Charles, St. Bernard, Terrebonne, Lafourche, St. Mary, and Assumption. Deer range surveys were made on the following Game Management Areas: Jackson-Bienville, Caney, Alexander State Forest, Red Dirt, Fort Polk, Catahoula, Sabine, Lutcher-Moore, Concordia, West Bay, and Thistlethwaite.

Prepared by:
Louis E. Brunett
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-7 Title: Southeastern Cooperative Wildlife Disease Study

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Personnel of the Southeastern Cooperative Wildlife Disease Study (SCWDS) made two field trips to Louisiana for the purpose of gathering additional information concerning disease and parasites of the major deer herds in Louisiana. Thirty deer were autopsied and thoroughly checked for parasites and disease. Ten of these deer were taken from Georgia Pacific Game Management Area, ten were taken from West Bay Game Management Area, and ten were taken from Pecan Island, Louisiana.

Recommendations: Continued effort should be made to investigate the diseases and parasites of our major deer herds in order that we may increase our management efficiency.

Objective: To conduct field and laboratory investigations of wildlife parasites and diseases.

Techniques Used: All techniques are governed by the SCWDS.

Findings: All findings are reported on by the SCWDS. Personnel of the SCWDS made two field trips to Louisiana during the period covered by this report. The first field trip, made in August of 1965, was made to Georgia Pacific Game Management Area in Morehouse Parish where ten deer were collected and necropsied.

In mid-April, 1966, personnel of the SCWDS returned to Louisiana and completed necropsies on ten deer from West Bay Game Management Area in Allen Parish, and ten deer collected at

Pecan Island, Vermilion Parish, Louisiana. The findings of these field investigations will be covered in forthcoming detailed reports from SCWDS.

The SCWDS also was responsible for the identification of ectoparasites collected from 154 deer by Louisiana technicians.

The period covered by this report should be considered one of the most productive years seen since the initiation of this cooperative project.

Prepared by:	Approved by:
Dan Dennett, Jr. Study Leader	Robert E. Murry Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-8 Title: Establishment of Browse

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Deer browse plant seed of various species were collected and planted in November of 1963, the springs of 1964, 1965, and 1966. Some were planted as whole fruit and others as seed removed from the fruit. Germination percent of these seed in fruit and seed removed from the fruit ran from none, to low, to high, depending on the species and method of planting. A study plot of slash pine (*Pinus caribaea*) and yaupon (*Ilex vomitoria*) seedlings was established on the Red Dirt Game Management Area.

Recommendations: It is recommended that this job be continued with emphasis placed on establishing yaupon from seed under various field conditions. The plot established to slash pine and yaupon should be checked at the end of each growing season.

Objectives: To determine if deer browse plants can be introduced on pine sites and if competition will exist between the plants and pine and at what stocking rate competition occurs. To determine seeding method of deer browse plant seed to get the highest percent to germinate.

Techniques Used: In this report only the work covered during this segment will be reported on. The Annual Report for the 1964-65 segment covered all work pertaining to this job since it was started in 1959.

In November, 1963, in a food plot on the Evangeline Game Management Area, 100 seed of each of the following were planted: yaupon (*Ilex*

vomitoria), redbay (Persea borbonia), arrow-wood (Viburnum dentatum), whitebay (Magnolia virginiana), largeleaf gallberry (Ilex coriacea), and strawberry bush (Euonymus americanus). At the same time 100 berries (fruit) of deciduous holly (Ilex decidua), arrow-wood, and whitebay were planted. These were planted in plots two feet square. Litter was removed from the plots exposing the mineral soil. Each plot was marked off in furrows opening the soil to a depth of about one-half inch. The seed or fruit were placed in the furrows and covered with one-quarter inch of soil.

In March, 1964, on the Evangeline Game Management Area, the following were planted: whitebay fruit, whitebay seed, arrow-wood seed, arrow-wood fruit, arrow-wood seed collected in 1962, strawberry bush seed, strawberry bush fruit, strawberry bush seed collected in 1962, deciduous holly seed, deciduous holly fruit, yaupon seed, yaupon fruit, yaupon seed collected in 1962, largeleaf gallberry seed collected in 1962, laurel greenbrier (Smilax laurifolia) seed, and redbay. These were planted in the same manner as those in November, 1963.

In the fall of 1964, fruit of whitebay, strawberry bush, and yaupon were gathered. The seed were removed from some of the fruit of all species. The fruit and seed of whitebay and strawberry bush were stratified in a refrigerator for 120 days before planting. The yaupon seed were stratified in the same manner for 90 days. The fruit and seed removed from the fruit of all the named species were planted in a food plot on the Evangeline Game Management Area. Both fruit and seed of the whitebay and strawberry bush were planted in plots two feet wide by four feet long. The yaupon was planted in plots 10 feet square. The litter was removed from all plots exposing the mineral soil. The seed were broadcast on the ground and covered with pine needles.

In the spring of 1964, seed of some deer browse plants were planted in boxes at the Alexandria office. These boxes were wooden ammunition boxes 26 inches long by 14 inches wide by 4 inches high, obtained from the Army at Fort Polk. A hardware cloth cover, framed with 1" x 1 " lumber, was used to exclude rodents.

The boxes were filled with a medium of one part peat moss to three parts sand. The seed were placed in these boxes at the rate of 200 per box on a one inch grid pattern. They were covered lightly with sand and peat moss and kept damp. The yaupon seed thus treated were kept under observation throughout the study period.

In February 1966, on the Red Dirt Game Management Area, study plots were established with seedlings of slash pine(*Pinus caribaea*) and yaupon. All plots were one-tenth acre in size. The slash pine was planted on all plots at an eight foot by eight foot spacing. The yaupon was put out three plots at each of three stocking rates. The plots were established in the following manner: (1) three plots of slash pine and yaupon at 720 plants per acre; (2) three plots of slash pine and yaupon at 360 plants per acre; (3) three plots of slash pine and yaupon at 160 plants per acre and (4) three plots of slash pine only.

On Red Dirt, in February 1966, yaupon and honeysuckle (*Longicera japonica*) were planted on beds that had been prepared with a breaking plow and a disk. Yaupon seed, removed from the fruit, that had been gathered during the winter of 1964-65 and stored in a refrigerator, and seed gathered during the winter of 1965-66 were planted. These seed were dropped by hand onto the prepared bed and covered with pine needles. The honeysuckle seed, removed from the fruit, and whole fruit were planted in the same manner at different locations on the bed.

Findings:

Of the seed planted on Evangeline Game Management Area in November, 1963, redbay was the only one to germinate in the spring of 1964. At that time, eight out of 100 seed came up but by the end of summer, the number had increased to thirteen. Seventeen whitebay came up in the summer of 1964. The seed of the remainder of the species planted in 1963 did not come up.

Of the seed planted on the Evangeline Game Management Area, in March 1964, none came up until the summer of that year. Those that came up were redbay, arrow-wood, and whitebay at 18, 21,

and 17 percent respectively. The yaupon seed collected in 1962 and planted in 1964 came up at 54 percent in the spring of 1965. In the spring of 1966, this number had increased to 74 percent. The yaupon seed collected in the winter of 1963-64 and planted on Evangeline Game Management Area in the spring of 1964 started coming up in the spring of 1965 and 29 percent had germinated by June 30. This number had increased to 82 percent by the spring of 1966.

The fruit and seed removed from the fruit of whitebay and strawberry bush collected in the fall of 1964, stratified for 120 days before planting did not come up.

Of the yaupon fruit, and seed removed from the fruit, gathered in the fall of 1964 and stratified for 90 days before planting the seed in the fruit did not germinate. The seed removed from the fruit started coming up in the spring of 1966 and 52 percent had germinated by June 30.

The yaupon seed planted in the boxes, at the Alexandria office, in 1964, started coming up in the spring of 1965. Thirty-four percent were found to have come up by then. By the spring of 1966, the number had increased to 82 percent. These boxes have deteriorated to such an extent that they can no longer be used.

On the plots planted to slash pine and yaupon, on Red Dirt, some of both species died and will be replaced.

The yaupon seed planted on the prepared beds and covered with pine needles have not started to germinate. The honeysuckle planted on similiar beds in the same manner have started coming up.

It was found that where yaupon seed have been removed from the fruit, planted in direct contact with the soil, and covered with litter, good germination will result. It is a year after planting before any evidence of germination is

found. It was found that additional seed will germinate the second year. It was also found that when yaupon seed are stratified for 90 days before planting the rate of germination is not appreciably changed.

Prepared by:	Approved by:
Louis E. Brunett Study Leader	Robert E. Murry Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-9 Title: Preliminary Survey of Parasites of White-tailed Deer in Louisiana

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Seven deer were necropsied for the purpose of this study. Four of these deer were collected from the deer study enclosures in Winn Parish. These deer were taken from research study pens having known stocking levels. Two deer from Jackson-Bienville Game Management Area were collected and necropsied. One deer found dead by a Wildlife Agent was also examined. Numerous color slides were made of the various parasites, disease conditions and internal organs of the deer examined.

Recommendations: This study should be continued until all major deer herds in this state have been examined. By using information obtained from the Southeastern Cooperative Wildlife Disease Study (SCWDS), field personnel are becoming more proficient in making gross examinations of deer collected. In this manner, we will ultimately be able to understand the relationships between parasite levels and optimum healthy deer populations. This job will also serve to acquaint the field technician with common disease and parasite conditions and, as a result, he will be in a position to readily recongnize major disease and parasite problems should they become a reality.

Objectives: The objectives of this job are to compile a list of the more common parasites of the white-tailed deer in Louisiana and familiarize technicians with these forms and their associated pathology. Color slides will be taken of as many parasites and pathological conditions as possible.

Techniques Used: Standard post-mortem examination procedures were used for these studies. Each deer was methodically dissected and inspected for parasites and tissues that appeared to be abnormal. Color slides were taken of as many parasites and diseased tissues as possible.

Findings: Examinations of the four deer collected from the Winn Parish deer enclosures revealed nothing outstanding insofar as disease or parasite conditions are concerned. One deer was found to have four meningo worms (Pneumostrongylus tenuis). This should be considered as rare in this locality. Further examination of the records concerning this deer showed that this animal was transferred from Red Dirt Game Management Area as a fawn and placed in the enclosure. Deer from Red Dirt Game Management Area commonly have meningo worm infections. This could possibly explain the occurrence of the parasite in this particular animal.

All of the deer examined from this area were found to have light infections of the gullet worm (Gongylonema pulchrum).

One deer was found to have a strong medicinal, resin-like smell originating from the walls of the rumen. Since the deer within the enclosures where this deer was collected frequently browsed upon young pine trees, it is assumed that the lining of the rumen had become saturated with pine oil. This condition has not been previously observed in deer examined thus far. It is also of interest to note that this deer was in poor general condition. This animal also showed a severe inflammation of the bladder.

All deer examined from this enclosure displayed moderate to light inflammation of the abomasum, a common condition which normally is associated with the presence of Deer Medium Stomach Worms (Skrjabinagia odocoilei).

Two deer from Jackson-Bienville Game Management Area were necropsied and found to be in exceptionally good physical condition. Parasites found were the gullet worm (Gongylonema pulchrum) and, again slight inflammation of the abomasum

which is probably indicative of the presence of the Deer Medium Stomach Worms (Skrjabinagia odocoilei). These deer were considered to be unusually free of parasites. Although a detailed examination was made of these deer, no other parasites were found.

One deer from Concordia Parish, found dead in the woods by a Wildlife Agent, was examined to determine the cause of death. Gross examination here revealed that death was caused by pneumonia involving both lungs. One lung showed a history of the disease for a longer period than did the other lung. It appeared that this animal was recovering from the first attack and developed similar infection in the other lung. Inflammation of the abomasum and anterior portion of the small intestines suggested moderate infection of the Deer Medium Stomach Worm (Skrjabinagia odocoilei). Light infection of the gullet worm (Gongylonema pulchrum) was also found in this animal. No other parasites were found.

Identification of the parasites listed in this report should be regarded as tentative identifications only. These tentative identifications are made by taking into consideration the host species, the organ of the deer's body where they are found, and the characteristic pathology caused by these parasites. It should be clearly understood that all examinations are gross examinations and do not employ laboratory procedures.

Prepared by:
Dan Dennett, Jr.
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-11 Title: Cooperative Range Study

Period Covered: July 1, 1965 - June 30, 1966

Abstract:

The fences of the three enclosures and controls were checked and maintained. The levees and spillways of the watering ponds were also maintained. The drive to verify the presence of the proper number of deer revealed each enclosure was properly stocked. Two deer were removed from the eight deer enclosure and one from each of the other two. These deer were replaced. The deer removed were examined for external and internal parasites and for general physical condition.

Recommendations: It is recommended that this job be continued with the same objectives as during this segment.

Objectives: This job has three objectives. They are: (1) To check the fence around three 160 acre enclosures and their 20 acre controls and to keep the fence right-of-way free of brush and to maintain the levees and spillways of the watering ponds; (2) To verify the presence of deer in each enclosure; and (3) To get weights and body measurements of deer in the enclosures and replace the deer in an orderly manner.

Techniques Used: To inspect the fence around the three 160 acre enclosures and their 20 acre controls every two weeks, and immediately after each heavy rain and high wind, for washouts and for trees or tree branches that may have blown on it. To control bushes and briars on the fence right-of-way, a farm tractor and rotary brush cutter is used.

Fertilizer was also put on established sod at various places along the fence right-of-way. To establish a sod in some places along the right-of-way, fertilizer and bahia grass seed were applied.

To verify the presence of deer in each enclosure, standers and drivers are used. Each enclosure is 2,112 feet wide and 3,300 feet long. The standers are placed along the access road that crosses the narrow width of each enclosure. The standers all face in one direction and count the deer that pass between them and the next stander. The drivers are placed at a distance of 30 feet apart along the fence on one end of the enclosure. On signal the drivers walk around the fence to the opposite end of the enclosure, take the proper interval, and on signal drive toward the standers. The drivers check all felled tree tops and thickets for deer. The drivers count any deer that pass back through the line to their right between them and the next driver.

To get weights and body measurements of the deer and to replace some animals in each enclosure, it was decided by all parties concerned to remove and replace them in the following manner: each year remove and replace two deer from the eight deer enclosure, one from the four deer enclosure, and this year (1966) and next year, remove and replace one, each year, from the two deer enclosure and thereafter remove one every other year. The deer are to be removed by shooting.

Findings: The fence was checked, the fence right-of-way and spillways and levees to the watering ponds were maintained.

The drive to verify the presence of deer in the enclosures revealed each to be properly stocked.

Two deer were removed from the eight deer enclosure and one each from the four and two deer enclosures. All deer were replaced by animals, nine to twelve months old, trapped on the Red Dirt Game Management Area. All deer, except one, were x-rayed by a local veterinarian to make sure they were not pregnant. Each new deer, prior to being released, was marked with a naughahyde covered leather collar. Each collar in one enclosure will be of a different color.

All the animals removed from the three enclosures were weighed and examined for general physical condition, internal and external parasites. The examinations were made by Dan Dennett, Jr., Deer Study Leader.

No attempt will be made to draw any conclusions from this small number of deer. After more are removed and examined, all collected data will be analyzed.

Prepared by:		Approved by:	
	Louis E. Brunett Study Leader		Robert E. Murry Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-12 Title: Rumen Content Analysis

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Rumen samples from thirty-seven white-tailed deer have been collected for analysis by gross examination. Collection jars filled with formalin were distributed to technical personnel throughout the state for the purpose of obtaining samples at every opportunity.

Recommendations: Since this study is designed to provide us with basic information concerning the seasonal food habits of the white-tailed deer, collection of sample material should be continued for several years until large samples have been obtained from the major deer producing areas. It is very important that these large samples shall contain material collected at all seasons of the year, rather than during the hunting season, as in the past. Field personnel should be provided with a supply of rumen sample collecting jars and a concerted effort should be made by these people to obtain samples from road kills, confiscated illegal deer, and at any other opportunity that might arise. A collection of reference plant material should be made from each of the major areas represented by rumen sample collections prior to analysis of sample material.

Objectives: This job is designed to provide information pertaining to the seasonal food habits of the white-tailed deer in Louisiana by the analysis of rumen samples.

Techniques Used: Rumen samples were placed in quart fruit jars containing a 10% formalin solution. Care was taken to insure that all of the sample material was covered by the formalin solution so as to reduce the possibility of subsequent loss of the sample. The date of collection and collection locality is scratched into the jar lid with a knife point so as to eliminate the possibility of losing the identity of sample material through misplaced or destroyed labels.

Findings: No further attempt at analysis of sample materials collected under this job will be made until such time as large numbers of samples from major deer herds are available. It is anticipated that field collection will probably take at least two more years to be completed. A collection of reference plant material from the areas represented will also be made at this time. The primary emphasis of this study now is being placed on the collection of sample material, particularly during times of the year other than the hunting season.

Prepared by:	Approved by:
Dan Dennett, Jr. Study Leader	Robert E. Murry Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-14 Title: Deer Publication

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Background and supporting data that were collected during this period was assembled and reviewed.

Recommendations: It is recommended that this job be continued with the same objective as was set forth for the year 1965-66.

Objective: To prepare a publication for distribution to interested citizens and sportsmen from deer data that has accumulated through the years 1949-1965.

Techniques Used: Background and supporting data obtained during this period relative to the publication were assembled. These data were reviewed. Photographs were obtained and reviewed. The Unit Leader of the Cooperative Wildlife Research Unit at Louisiana State University is to do most of the work in preparing the publication. Other duties prevented him from devoting sufficient time, during this segment, to get anything accomplished on the publication. It is anticipated, at this time, that the publication will be finished and ready for distribution during the 1966-67 project period.

Prepared by:
Louis E. Brunett
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date: ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-15 Title: Palatability of Sprouts

Period Covered: July 1, 1965 - June 30, 1966

Abstract: A study area was set up to produce sprouts by treating deer browse shrubs with herbicide, with burning, and with cutting. The herbicide used was 2, 4, 5-T. An abundance of sprouts was produced by the species burned and cut. The herbicide treated species did not produce many sprouts. Results of the analysis of samples of sprouts collected during the 1964-65 segment of this study were received. Samples of sprouts from the treated areas were collected again for analysis. The palatability of some species was increased by the production of sprouts.

Recommendations: It is recommended that this job be continued until more sprouts produced by herbicide treated browse species are checked. This check should be made in the field for deer usage of the sprouts and in the laboratory to determine if the sprouts retain the herbicide. If the sprouts do retain the herbicide the affect this has on deer usage should be noted.

Objective: The objective of this job was to determine if sprouts produced by 2, 4, 5-T treated browse species retained the herbicide and the effect it has on their palatability.

Techniques Used: To accomplish the objective of this job sprouting of deer browse species was induced by three methods: (1) herbicide treatment, (2) burning, and (3) cutting. A cattle free study area was selected on the Red Dirt Wildlife Management Area. This area was situated in a stream bottom that was several chains wide. The overhead canopy of the study area was of medium density

and made up of loblolly pine (Pinus taeda), white oak (Quercus alba), water oak (Quercus nigra), and beech (Faqus grandifolia). The understory was made up of black gum (Nyssa sylvatica), maple (Acer rubrum), spring huckleberry (Vaccinium elliottii), yaupon(Ilex vomitoria), azalea Rhododendron canescens), water oak, sweetleaf (Symplocos tinctoria), witch-hazel (Hamamelis virginiana), whitebay (Magnolia virginiana), parsley hawthorn (Crataegus marshallii), redbay (Persea borbonia), snowbell (Styrax americana), largeleaf gallberry (Ilex coriacea), candleberry (Sebastiana ligustrina), and flowering dogwood (Cornus florida). This site was chosen because a variety of plants could be treated on a small area.

The study area was divided into four plots, each approximately one acre in size. Desirable and intermediate preference deer browse species on one plot were treated with 2, 4, 5-T (four pounds acid equivalent per gallon) at a concentration of eight pounds acid equivalent per hundred gallons of water and diesel oil emulsion. The herbicide was applied to each plant with a back pack type pressure sprayer.

Deer browse species, on one plot, rated as desirable and intermediate preference were cut with a brush blade. There was no effort made to cut these at any specific height. The cut was made at a convenient height from anywhere near ground level to 18 inches.

One plot was burned in March 1965. One plot was not treated and is used as a control. Periodic observations were made to determine if there was a choice, by deer, between the sprouts produced on browse species as treated by the three methods described above.

In May 1965 samples of sprouts from whitebay, redbay, maple, dogwood, azalea, blackgum, and largeleaf gallberry, were clipped from all three treated plots. Growth of the year was clipped from the same species on the control plot. Two samples were collected from each species on each plot. The first two inches of the stem tip made up one sample and the next

four inches of each stem made up the other. These samples were taken to the Cooperative Wildlife Research Unit at Louisiana State University. There they were oven dried and ground. The Feed and Fertilizer Laboratory at the University analyzed the samples for protein, fat, fibre, percent moisture, ash, calcium and phosphorous.

During this segment additional plots were treated in the same manner as those above.

Sprout samples were collected from the same plants as above. These samples included sprouts of this year's growth and second year sprouts. Sprouts on the herbicide treated plots had not made sufficient growth to collect the necessary samples.

Usage by deer of the various treated plots was also observed.

Findings:

The results of the field observations revealed the same results as the past two years. There was an abundance of sprouts produced on both the burned and cut plots. These sprouts had made luxuriant growth. Sprouts produced by the herbicide treated plants were not very abundant. The sprouts produced were generally growing rather slowly. There was no significant difference in the amount of deer usage between the burned and cut plots. Deer tracks were abundant in both. Browse sign on the herbicide treated plot could not be found. Deer tracks were absent from this plot. This same situation existed in the herbicide treated plot where the sprouts are two years of age.

It was noted, for this growing season as well as for the two previous, in the burned and cut plots there was very little usage on yaupon, redbay, and whitebay. On both plots practically every sprout on blackgum, maple, and water oak, had been browsed. All of the above plants are rated as desirable forage on this range. On both plots the sprouts of two intermediate species, spring huckleberry and azalea were highly utilized. Dogwood, on both plots, put on an abundance of sprouts and was heavily utilized.

In the two previous years the usage on this species was lighter.

The results of the analysis of the sprout samples collected during the 1964-65 segment of this study were received in January 1966. A detailed discussion of this data will not be undertaken at this time. After more samples are analyzed all data will be studied and the results examined. The results of the analysis of sprout samples collected in May 1965 are presented in Table I. Generally the quality of the sprouts produced by all treatments was improved by an increase in the percent of protein.

The analysis of sprout samples sent to Louisiana State University in June 1966 will not be completed before September.

Prepared by:
Louis E. Brunett
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

TABLE I

Results of Analysis of Sprout Samples Collected from Red Dirt Study Area, May 1965

Treatment	Species	Stem Part	Percent Protein	Percent Fat	Percent Fibre	Percent Moisture	Percent Ash	Percent Calcium	Percent Phosphorous
Herbicide	Whitebay	Combined	12.4	x	x	x	x	x	x
	Redbay	Tips	15.9	5.5	25.7	7.0	4.9	.38	.28
	Redbay	4 ins.	14.4	x	x	x	x	x	x
	Largeleaf Gallberry	Combined	x	6.5	29.0	x	x	x	x
	Azalea	Combined	9.7	2.8	21.5	x	x	x	x
	Dogwood	Combined	8.6	x	x	x	x	x	x
	Blackgum	Combined	12.9	3.2	21.1	7.8	5.7	1.00	.19
	Maple	Tips	9.1	5.1	23.2				
	Maple	4 ins.	9.7	4.8	25.0				
Cut	Whitebay	Tips	18.9	8.9	18.6	7.8	5.6	.41	.30
	Whitebay	4 ins.	13.7	9.1	23.7	7.8	6.4	.60	.24
	Redbay	Combined	8.3	4.2	35.5	7.5	2.6	.28	.13
	Azalea	4 ins.	8.4	3.4	28.0	8.2	3.7	.42	.08
	Dogwood	Tips	12.5	2.0	11.1	10.0	8.1	1.81	.21
	Dogwood	4 ins.	9.6	2.6	17.4	9.8	7.7	1.65	.16
	Blackgum	Combined	16.6	1.6	12.9	8.8	5.9	.59	.26
	Maple	Combined	15.3	5.1	14.0	7.2	4.9	.38	.30
Burned	Whitebay	Tips	17.6	8.9	19.1	7.7	5.5	.29	.27
	Whitebay	4 ins.	15.4	8.0	24.1	8.5	6.3	.36	.25
	Redbay	Combined	6.3	x	x	x	x	x	x
	Azalea	Tips	13.9	4.1	17.9	8.5	5.1	.58	.21
	Azalea	4 ins.	11.1	3.2	28.2	x	x	x	x
	Dogwood	Tips	14.0	2.4	12.3	9.8	9.4	2.13	.23
	Dogwood	4 ins.	12.4	3.2	16.7	9.6	8.9	2.00	.19
	Blackgum	Tips	14.6	2.6	12.7				
	Blackgum	4 ins.	10.4	2.3	21.5				
	Maple	Tips	11.1	4.3	15.5	7.6	5.1	.43	.26
	Maple	4 ins.	10.8	3.5	23.8	7.9	5.5	.69	.27

TABLE I (cont'd)

Results of Analysis of Sprout Samples Collected from Red Dirt Study Area, May 1965

Treatment	Species	Stem Part	Percent Protein	Percent Fat	Percent Fibre	Percent Moisture	Percent Ash	Percent Calcium	Percent Phosphorous
Control	Whitebay	Tips	9.3	8.8	25.1	8.2	4.9	.48	.16
	Whitebay	4 ins.	8.7	7.3	28.1	8.0	5.2	.63	.14
	Redbay	Tips	7.7	4.2	34.1	7.2	3.1	.35	.10
	Redbay	4 ins.	6.9	2.9	41.6	x	x	x	x
	Largeleaf Gallberry	Tips	6.6	12.1	18.2	5.9	3.1	.25	.08
	Largeleaf Gallberry	4 ins.	5.8	12.6	22.8	5.5	2.9	.28	.09
	Azalea	Tips	8.8	5.6	20.1	7.5	5.7	.88	.08
	Azalea	4 ins.	5.9	3.5	35.3	7.8	3.6	.55	.07
	Dogwood	Tips	8.8	6.2	13.4	8.8	8.4	2.25	.10
	Dogwood	4 ins.	5.4	4.1	25.4	x	x	x	x
	Blackgum	Tips	8.3	3.9	8.8	8.3	4.4	.63	.08
	Blackgum	4 ins.	7.1	3.2	23.0	8.3	4.0	.65	.07
	Maple	Tips	8.6	7.1	21.8	7.3	4.3	.70	.13
	Maple	4 ins.	7.6	5.5	26.8	7.7	3.7	.63	.11

Combined - The two inch tip plus the four inches were combined to make up the sample.
x - Insufficient sample.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-16 Title: Winter Plantings

Period Covered: July 1, 1965 - June 30, 1966

Abstract: The honeysuckle plants in the north 40 deer corral on the Red Dirt Game Management Area did not make enough growth to pursue two objectives of this job. On two plots on Red Dirt, soil samples were collected and the soil analyzed before planting wheat. Wheat was planted at two fertilization rates. Those study plots where lime, 6-24-24 fertilizer, and ammonia nitrate were applied produced the most green forage per acre.

Recommendations: It is recommended that this study be continued. To further evaluate the utility of winter plantings for deer, it is recommended that a study be conducted involving honeysuckle (Lonicera japonica) for one year and honeysuckle and wheat for the next. This study should be carried out in the two 40 acre deer corrals on the Red Dirt Game Management Area where two acres of honeysuckle have been established in the north 40.

An evaluation should be made of the effects of deer browsing on the production of wheat forage. This study should be set up by having the soils analyzed and plots established using fertilization rates as recommended, fertilization rate that has been used in the past on Red Dirt, and no fertilization. It is further recommended that before future plantings of any nature are made on Red Dirt, the soil on the plots be analyzed and fertilized as recommended.

Objectives: The objectives of this study are: (1) To determine the practicability of establishing honeysuckle on plots for deer; (2) To determine

the amount of forage produced per acre of honeysuckle planting; (3) To determine the amount of forage produced per acre of wheat planting, and (4) To determine the cost of producing green forage from wheat.

Techniques Used: To accomplish the first two objectives of this job, a study was begun in two 40 acre deer corrals on the Red Dirt Game Management Area. These two corrals are in typical Red Dirt timber types and topography. These corrals are referred to as the south 40 and north 40.

In 1964, an effort was made to establish two acres of honeysuckle in the north 40. The honeysuckle plants were put out but had about a 50 per cent survival. The surviving plants did not make much growth. Considering there was not enough honeysuckle present to carry on the study, it was discontinued for the 1964-65 period of this job.

More honeysuckle plants were put in during the spring of 1965. The survival of these was poor. Again in 1965, there was not enough honeysuckle to carry on the study and this portion was discontinued. During the winter 1965-66, more honeysuckle was put in. It appeared to have a better survival rate than any during the past. At this writing, there are approximately two acres of honeysuckle established. It was fertilized during the spring with ammonia nitrate.

To accomplish the objectives of determining the amount of forage produced per acre of wheat planting and the cost of producing the green forage, two plots each on different sites on the Red Dirt Game Management Area were used. One plot, the Mossy Head Plot, was on flat, poorly drained, fine sandy loam soil and the other, the gas line plot, was on well drained, deep sand.

Soil samples were collected from the two plots and turned over to the county agent of Rapides parish. The county agent sent the samples to the Soil Testing Laboratory, Louisiana State University Agricultural Experimental Station, Baton Rouge, Louisiana, for analysis.

Each plot was prepared for planting by breaking the soil with a farm tractor and breaking plow, and then disking twice. Nine study plots ten feet by 30 feet were measured off, three plots wide and three plots long. A ten foot, buffer strip, separated the plots. Three of these plots were planted with the lime and fertilization rate as recommended from the soil analysis; three were planted with a fertilization rate of three hundred pounds 12-12-12 per acre, and three were planted with no fertilizer and used as a control. The seeding rate for all plots was two bushels of wheat per acre.

These study plots were planted by applying the required amount of lime, fertilizer, and seed and then disked in.

On the Mossy Head Plot, the recommendation for lime and fertilizer per acre was three tons lime, 400 pounds of 6-24-24 or 0-20-20 per acre, and 150 pounds of ammonia nitrate or 300 pounds nitrate of soda, plus top dressing with 150 pounds ammonia nitrate in January. Four hundred pounds of 6-24-24 plus the recommended amount of ammonia nitrate was used.

On the gas line plot two tons of lime per acre was recommended. Other fertilizer recommended and that used was the same as for the Mossy Head Plot.

All wheat plantings were made October 13, 1965. Ammonia nitrate was applied on those plots due to receive it on February 1, 1966.

Three plots, each one meter in size, were picked mechanically on each of the 10 x 30 foot plots. This made a total of nine sampling plots for each treatment on each large plot. To protect the wheat on these sampling plots, from being browsed by deer, enclosure cages constructed from 1 x 2 inch weld wire were used. The cages were round in shape and covered an area equal to one square meter. The wheat under these protective cages was clipped and weighed on March 28, 1966. This wheat was clipped approximately one inch from the ground. The weights obtained from the clipped wheat were used to compute a total production figure.

To determine the cost of producing the amount of green forage grown on an acre of wheat figures for the cost of breaking, disking, fertilizer, applying fertilizer, seed and seeding, and disking to cover were used.

Findings:

The poor growth made by the honeysuckle plants put in the north 40 caused cancellation of the pursuit of the first two objectives. During the winter of 1964-65 and 1965-66, more plants were put out to replace those that had died. All plants were fertilized during the spring of 1966 with ammonia nitrate. The honeysuckle now present is putting on an abundance of growth and it appears, at this time, that work to accomplish the first two objectives may be carried out during the fall of 1966.

The analysis of soils from the Mossy Head Plot revealed that all nutrients checked for were low in availability. The analysis showed available phosphorous 19 parts per million, available potassium 20 p.p.m., available calcium 120 p.p.m., and available magnesium 53 p.p.m.. The pH was determined to be 4.4.

To grow wheat on this soil, it was recommended that the least amounts of fertilizer needed per acre was three tons of lime, 100 pounds of nitrogen, 80 pounds of phosphate, and 80 pounds of potash. The three tons of lime per acre was to correct the low calcium and pH. This lime would last approximately five years. To correct the phosphate and potash deficiency, it was recommended that we apply 400 pounds of 6-24-24 or 0-20-20 per acre annually, apply 150 pounds of nitrogen, at time of planting or top dress with nitrogen after the stand is obtained. Make another application as needed in January.

The analysis of the soils from the gas line plot showed available phosphorous to be medium with 60 p.p.m., available potassium low with 55 p.p.m., available calcium low with 120 p.p.m., and available magnesium low at 53 p.p.m.. For this plot the recommended fertilization rate was the same as for the Mossy Head Plot. However, only two tons of lime per acre were recommended.

On the Mossy Head Plot I computed from the wheat clipped and weighed on the small study plots the following amounts produced per acre: (1) where lime, fertilizer (6-24-24) and ammonia nitrate were applied - 27,326 pounds, (2) where fertilizer (12-12-12) only was applied - 10,571 pounds, and (3) no fertilization (control) - 1,404 pounds. The clipped wheat on the study plots on the gas line plot computed to the following production rate per acre: (1) where lime, fertilizer (6-24-24), and ammonia nitrate were applied - 26,260 pounds, (2) where fertilizer (12-12-12) only was applied - 6,297 pounds, and (3) no fertilization (control) - 1,741 pounds.

Periodic observations revealed that those study plots receiving the lime, fertilizer, and ammonia nitrate were a dark green in color. Deer browsed on those plots to a greater extent than on those receiving only fertilizer or on the controls.

The cost of producing the green forage is computed on a ton (2,000 pound) basis by using the costs involved in producing the total amount per acre by each treatment. Each study plot will be computed separately by treatment.

Each treatment on the Mossy Head Plot will be computed first.

Lime - 6-24-24 - ammonia nitrate treatment

*Lime - 3 tons @ $8.65/ton = $25.95 =	$ 5.19
400 lb. 6-24-24 @ $3.40/100 lb. =	13.60
300 lb. ammonia nitrate @ $3.25/100 lb. =	9.75
Wheat seed - 2 bu. @ $2.75/bu. =	5.50
**Operation of tractor - 3 hrs. @ $.65/hr. =	1.95
***Labor - 2 utility laborers - 6 hrs. @ $1.50/hr. =	9.00
	$44.99

Total production 27,326 pounds per acre at $44.99 = $3.28/ton.

*Lime good for five years - this cost broken down as cost per yr.

**Operation of tractor based on $5.00 per 8 hour day.

***Does not take into account the supervision of these laborers.

12-12-12 fertilizer treatment

300 lbs. 12-12-12 @ $3.10 /100 lb. =	$ 9.30
2 bu. wheat seed @ $2.75/bu. =	5.50
Operation of tractor - 3 hrs. @ $.65/hr. =	1.95
Labor - 2 utility laborers - 6hrs. @ $1.50/hr. =	9.00
	$25.75

Total production 10,560 pounds per acre at $25.75 = $4.88/ton.

No fertilizer - control

2 bu. wheat seed @ $2.75/bu. =	$ 5.50
Operation of tractor - 3 hrs.@ $.65/hr. =	1.95
Labor - 2 utility laborers - 6hrs. @ $1.50/hr. =	9.00
	$16.45

Total production 1,404 pounds per acre @ $16.45 = $23.40/ton.

For the gas line plot the computations are below:

Lime, 6-24-24, ammonia nitrate treatment

*Lime - 2 tons @ $8.75/ton =	$ 3.46
400 lb. 6-24-24 @ $3.40/100 lb. =	13.60
300 lb. ammonia nitrate @ $3.25/100 lb. =	9.75
Wheat seed - 2 bu. @ $2.75/bu. =	5.50
Operation of tractor - 3 hrs. @ $.65/hr. =	1.95
Labor - 2 utility laborers - 6 hrs. @$1.50/hr. =	9.00
	$43.26

Total production 26,260 pounds per acre at $43.26 = $3.30/ton.

12-12-12 treatment

Cost same as for Mossy Head Plot

Total production 6,295 pounds per acre at $25.75 = $8.18/ton.

No fertilizer - control

Cost same as for Mossy Head Plot.

Total production 1,741 pounds per acre at $16.45 = $18.90/ton.

Prepared by:
Louis E. Brunett
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: I-17 Title: Burning Study

Period Covered: July 1, 1965 - June 30, 1966

Abstract: On the Red Dirt Game Management Area, a three acre plot was established and burned during the summer of 1965. This plot will be burned every two years until it is burned three times. A three acre control plot was established adjacent to it. On Red Dirt, four plots, each two acres in size, were established and three of these were burned in March, 1965. In March, 1966, one of these was burned. One of the two acre plots will be maintained as a control. On the Catahoula Game Management Area, four plots, two acres in size, were established and treated in the same manner as those on Red Dirt. After the growing season of 1965, on all plots, study plants were selected and marked. The sprouts of the study plants were counted and the total length of the main stem of each sprout was measured.

Recommendations: It is recommended that this job continue seven more years in order that enough data can be collected and evaluated to determine if there are any differences in the effects of burning at various times on deer browse.

Objectives: To determine the effects of summer burning on deer browse species along the stream bottoms in the longleaf pine timber type. To determine the effects of winter burning every year, every two years, and every three years on deer browse plants in the longleaf pine, loblolly-shortleaf pine-hardwood timber type, and in bottomland hardwoods.

Techniques Used: On the Red Dirt Game Management Area, in the stream bottom of Steep Hill Creek, two adjacent plots, each three acres in size, were established. One of these plots was burned in June, 1965. The other plot will not be burned and will be used as a control. These plots begin in the creek bottom and extend out to and includes a hillside. The treated plot is to be burned every two years, in June, until it is burned three times.

On the Red Dirt Game Management Area, four plots, each two acres in size, were established. These plots begin in the creek bottom of Steep Hill Creek, and extend out onto the hillside. Three of the plots were burned in March, 1965. One plot will not be burned and will be used as a control. The plots described above will be burned in the following manner: (1) one burned every year, (2) one burned every two years, and (3) one burned every three years. These plots will be used to accomplish the objectives related to the longleaf pine timber type.

On the Catahoula Game Management Area, in the loblolly-shortleaf pine-hardwood timber type, four plots were established. Each of these plots is two acres in size. The plots are side by side beginning in a stream bottom and extending out onto a hillside. Three of these plots were burned in January, 1965. One plot will not be burned as it will serve as a control. These plots are to be burned one every year, one every two years, and one every three years.

On Red Dirt and Catahoula, the plot to be burned annually was treated in March, 1966.

After the 1965 growing season, deer browse species on all the study plots were marked and checked. They were marked so the same plant could be checked each year. The plants were checked by noting the condition of the main stem, counting the number of sprouts produced by each old stem, and by getting the total length of the main stem of each sprout.

An effort was made to check on each plot, ten plants of each species selected for study.

However, this number of each species was not present on every plot. On Red Dirt, on the plots burned in winter, those species selected for study were yaupon (Ilex vomitoria), blackgum (Nyssa sylvatica), maple (Acer rubrum), and whitebay (Magnolia virginiana). On Catahoula, the species selected were ash (Fraxinus pennsylvanica), water oak (Quercus nigra), elm (Ulmus alata), maple, blackgum, and dogwood (Cornus florida).

On Red Dirt, on the plot burned in the summer, the species selected for study were dogwood, maple, whitebay, blackgum, and yaupon.

On the plots burned in the winter on both Red Dirt and Catahoula, permanent line transects were established to check the species and number of forbs that would come in. On Catahoula, six transects one chain long, were established on each study plot. On Red Dirt, the transects were the same length, but only three were established on each plot. A surveyor's chain was used for the line. The chain was stretched between two points and all forbs directly under it were identified and counted.

On all plots photography points were established and photographs were taken.

Findings: All data were collected and is inconclusive at this time.

Prepared by:
Louis E. Brunett
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of:	Louisiana		
Project No.:	W-29R-13	Name:	Statewide Wildlife Investigations
Job No.:	II-2	Title:	Aerial Census of Louisiana Waterfowl

Period Covered: July 1, 1965 - June 30, 1966

Abstract: The ducks in Louisiana during the midwinter inventory increased 3½% over last year. An increase of 34% was noted in the Mississippi Flyway for total ducks observed.

Recommendations:

1. Conduct aerial surveys once a month rather than bimonthly. This would give time for a more complete survey of the state.
2. Estimate use of refuges by waterfowl before, during, and after the season.
3. Continue offshore surveys of scaup to get a better estimate of the population.
4. Change from line transect method through known areas of duck concentrations to total count method of these areas.
5. Use the Cessna 210 for all surveys.

Objectives:

1. Provide periodic estimates of the state waterfowl population for public information.
2. Provide estimates of waterfowl day use on state refuges and public shooting grounds.
3. Continue the exploration of offshore areas to improve present estimates of the scaup populations wintering in Louisiana waters.
4. Explore methods to verify estimate counts of waterfowl.

Techniques Used: Used line transects as described in the Louisiana Waterfowl Population Study Final Report, July 1949-June 1961. All marsh flights were made by the Cessna 210 landplane.

Findings: Ducks in Louisiana have increased approximately 3½% over the 1965 midwinter inventory. This increase was evident in the Mississippi Flyway as total ducks increased 34% this year over the 1965 midwinter inventory. This increase was expected because the nesting habitat in Canada has shown considerable improvement during the past two years. See tables and discussion on back of tables.

Special Teal Survey

September 12 - 16, 1965

	S.W. La.	S.E. La.	Cen. La.	N.E. La.	N.W. La.
Blue & Green Winged teal	48,000	20,000	8,000	2,000	1,500

This was a rather early date to aerial count teal. There was a great deal of vegetation to cut down on visibility from the air, and also the teal had not reached a peak migration in Louisiana at this date. Ten days later the teal increased to 235,000 in the state.

Prepared by:
Clark M. Hoffpauer
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE: LOUISIANA

TYPE OF COVERAGE: Total Count & Transects DATE: October 11-15, 1965

REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	700	600	200	300	0	1,800
Black Duck	0	0	0	0	0	0
Gadwall	39,000	55,000	4,500	1,500	6,000	111,000
Baldpate	66,000	34,000	35,000	500	2,500	138,000
Green W. Teal	54,000	22,000	25,000	500	500	102,000
Blue W. Teal	156,000	75,000	52,000	500	0	283,500
Shoveler	54,000	16,000	10,000	200	500	80,700
Pintail	58,000	14,000	55,000	500	0	127,500
Wood Duck	*	*	*	*	*	*
Mottled Duck	19,000	22,000	0	0	0	41,000
Redhead	0	0	0	0	0	0
Canvasback	0	0	0	0	0	0
Scaup	0	0	0	0	0	0
Ringneck	5,000	0	0	0	0	5,000
Ruddy	0	0	0	3,500	0	3,500
Merganser	0	0	0	0	0	0
TOTAL	451,700	238,600	186,700	7,500	9,500	894,000
Canada Geese	**	**	**	**	**	**
Whitefront G.	15,000	**	**	**	**	15,000
Blue & Snow Geese	**	**	**	**	**	**
TOTAL	15,000	**	**	**	**	909,000
Coots	54,000	29,000	20,000	17,000	9,500	129,500

*Good number of woodducks seen but not censused.

**Will be conducted by Fish and Wildlife Service at a later date. 15,000 white fronts were reported in the Gueydan-Laccasine area by J. Lynch.

The last year and this year October inventory are comparably the same; both were preceded by a devastating hurricane and both had approximately the same number of ducks in the final tally (854,550 in 1964 and 894,000 in 1965).

Southeast Louisiana, particularly the Delta marshes were hit hardest by Hurricane Betsy. It appears that much of the aquatic and emergent vegetation was destroyed. At this time much of the pondweed (Potamogeton sp.) and widgeon grass (Ruppia maritina) is returning very satisfactorily. Probably because of lack of food the ducks have shifted westerly and dropped in population approximately 37% from last year. All sections of the state showed a slight increase over last year except southeast Louisiana.

The most spectacular gathering of ducks is on Catahoula Lake in Central Louisiana. There are approximately 187,000 ducks, 20,000 coots and 7,500 blue and snow geese on this lake. One reason for this is that the lake seems to be a central gathering place during migration and also the great amount of food present (Eleocharis sp.). These birds have rooted up large areas of spikerush and it has formed large floats.

Northwest Louisiana looks rather good, particularly Caddo Lake which has about 8,000 ducks on it and 9,500 coots. Most of the ducks were Gadwall and Baldpate. Northeast Louisiana at this time is up to par for this time of the year. A larger number of ducks would undoubtedly have been recorded had the Mississippi River been at a lower stage. The river is higher than normal due to a rise and has covered all of the flats with food on them. Thus, the ducks have moved elsewhere.

South Louisiana marshes are in slightly better shape compared to last year due to an increase in the amount of millet (Echinochloa sp.) present.

Submitted by:

Clark Hoffpauer
Waterfowl Study Leader

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE: LOUISIANA

TYPE OF COVERAGE: Total Count & Transects DATE: November 3-8, 1965

REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	62,000	12,000	10,000	5,000	2,000	91,000
Black Duck	0	0	500	500	500	1,500
Gadwall	223,000	204,000	5,000	2,000	12,000	446,000
Baldpate	127,000	54,000	40,000	1,000	3,000	225,000
Green W. Teal	99,000	30,000	45,000	2,000	2,000	178,000
Blue W. Teal	56,000	17,000	26,000	3,500	3,000	105,500
Shoveler	71,000	10,000	15,000	1,500	3,000	100,500
Pintail	121,000	25,000	64,000	1,500	1,500	213,000
Wood Duck	*	*	*	*	*	*
Mottled Duck	29,000	26,000	0	0	0	55,000
Redhead	500	500	250	150	150	1,550
Canvasback	500	Trace	1,500	0	0	2,000
Scaup	600,000	*	3,000	2,500	2,500	608,000
Ringneck	9,000	1,000	4,500	3,000	2,000	19,500
Ruddy	500	500	2,500	3,500	500	7,500
Merganser	1,500	2,500	500	500	250	5,250
TOTAL	1,400,000	382,500	217,750	26,650	32,400	2,059,300
Canada Geese	3,400	100	0	0	0	3,500
Whitefront G.	53,000	0	0	0	0	53,000
Blue & Snow Geese	275,000	100,000	7,500	0	0	382,500
TOTAL	331,400	100,100	7,500	0	0	439,000
Coots	75,000	52,000	27,000	15,000	20,000	189,000

*Not censused

Flights of waterfowl into Louisiana thus far have been excellent.

This is the time of the year when the waterfowl numbers really start to climb in Louisiana. There is an approximate 130% increase in ducks over October 11-15 inventory. All ducks showed an increase, except Bluewinged teal which normally decline at this time as they migrate on southward to Central and South America.

One of the most spectacular gathering of ducks is in an area in the Gulf of Mexico about 40 square miles which has approximately 600,000 Lesser Scaup on it. This area is located offshore from the center of Marsh Island west to Chenier au Tige' Island.

One concern to the Louisiana hunter was the large reduction of the pintail in the bag. At this time, the number of pintail in Louisiana does not substantiate this reduction as they are present in good numbers as compared to previous inventories.

The mallard migration is just starting to Louisiana and should build up much higher after some colder weather up north.

The Louisiana marshes are slightly on the dry side, but rains last week helped the situation greatly. There is no problem as far as the food or water supply as there are many millions of acres which are now considered prime waterfowl habitat.

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Partial and Total Count DATE: Nov. 15-24 & Dec. 1-6, 1965
REPORTED BY: Clark M. Hoffpauir

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	374,000	137,000	116,000	10,000	2,000	639,000
Black Duck	5,000	2,000	500	1,000	1,000	9,500
Gadwall	411,000	460,000	42,000	3,000	17,000	933,000
Baldpate	193,000	228,000	11,000	2,000	12,000	446,000
Green W. Teal	344,000	293,000	82,000	8,000	5,000	732,000
Blue W. Teal	136,000	216,000	4,000	2,000	2,000	360,000
Shoveler	195,000	51,000	8,000	1,000	2,000	257,000
Pintail	464,000	417,000	122,000	1,000	4,000	1,008,000
Wood Duck	*	*	*	*	*	*
Mottled Duck	29,000	26,000	0	0	0	55,000
Redhead	500	23,000	500	500	500	25,000
Canvasback	500	2,000	500	100	500	3,600
Scaup	390,000	CENSUS NOT	COMPLETED	IN WATERS	OFFSHORE	390,000
Ringneck	12,000	3,000	12,000	3,000	2,000	32,000
Ruddy	500	500	0	3,500	500	5,000
Merganser	1,500	2,000	500	0	0	4,000
TOTAL	2,556,000	1,860,500	399,000	35,100	48,500	4,899,100
Canada Geese	3,400	100	0	0	0	3,500
Whitefront G.	53,000	0	0	0	0	53,000
Blue & Snow Geese	275,000	100,000	7,500	0	0	382,500
TOTAL	331,400	100,100	7,500	0	0	439,000
Coots	263,000	217,000	72,000	21,000	11,000	584,000

*Not Censused

All goose inventories were conducted by the U. S. Fish and Wildlife Service.

An excellent duck population is now present in Louisiana. This applies particularly to mallards, pintail, gadwall, green-winged teal, and widgeon. A look at the figures will show that there has been a large increase in ducks in the state in the last two or three weeks. Mallards in particular are increasing rapidly and if some real cold weather occurs up north the number will probably go up appreciably by the January inventory.

Scaup off the southwest Louisiana coast have decreased greatly and it is probable that the large numbers found there early in November have migrated southward to Central and South America. Still the bonus duck is showing up very good in the hunter bag.

Pintail have shown no decrease in Louisiana from last year's inventories.

Caddo Lake has the largest number of ducks on it in many a year.

Catahoula Lake also has one of the largest concentrations of ducks seen in a number of years. There are approximately 300,000 ducks on the lake now, mostly pintail (120,000), and mallards (95,000).

Two different inventory techniques were compared as to variance between total counting and strip or transect counting. The difference between the two methods varies .5% to 15% on different species. This gives a good picture of how many waterfowl are in Louisiana.

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Total Count & Transect

DATE: Jan. 3-10, 1966

REPORTED BY: Hoffpauir & Summerall

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	361,000	154,000	65,000	82,000	3,000	665,000
Black Duck	2,800	2,200	500	1,000	500	7,000
Gadwall	592,000	230,000	38,000	18,000	9,000	887,000
Baldpate	314,000	146,000	20,000	10,000	5,000	495,000
Green W. Teal	475,000	268,000	87,000	17,000	8,000	855,000
Blue W. Teal	79,000	43,000	3,000	2,000	1,000	128,000
Shoveler	187,000	88,000	9,000	3,000	3,000	290,000
Pintail	702,000	234,000	167,000	5,000	5,500	1,113,500
Wood Duck	7,000	22,000	25,000	25,000	20,000	99,000
Mottled Duck	31,000	22,000	0	0	0	53,000
Redhead	0	23,000	0	0	0	23,000
Canvasback	4,000	3,500	2,500	2,000	0	12,000
Scaup	241,000	116,000	5,000	15,000	3,000	380,000
Ringneck	16,000	1,500	12,000	10,000	2,500	42,000
Ruddy	1,200	0	4,000	8,000	0	13,200
Merganser	3,000	7,000	0	0	0	10,000
TOTAL	3,016,000	1,360,200	438,000	198,000	60,500	5,072,700
Canada Geese	6,817	0	0	0	0	6,817
Whitefront G.	46,642	0	0	0	0	46,642
Blue & Snow Geese	352,220	23,000	0	0	0	375,220
TOTAL	405,679	23,000	0	0	0	428,679
Coots	800,000	195,000	10,000	2,000	8,000	1,015,000

A total of 5,072,700 ducks, 428,679 geese and 1,015,000 coots were found in Louisiana during the mid-winter census of waterfowl conducted by the Louisiana Wild Life & Fisheries Commission. This added up to a grand total of 6,516,379 waterfowl found in the state during the week of January 3-10.

As compared to the mid-winter of last year there was very little change or variation in species composition but an increase of about 300,000 ducks. Still holding their own are mallard and pintails that occurred in high numbers this year just as in years past.

Some of the largest concentrations of ducks observed were in the White Lake Marsh, Rockefeller Refuge, Sabine Refuge, Catahoula Lake and the marshes south of Houma, Louisiana. Reports from up the Flyway indicate that 3 or 4 million mallards failed to make it as far south as Louisiana by the end of the hunting season due to mild weather.

Louisiana started out this fall with a very dry September, October and November. This was good for seed producing annual grasses to grow but many ducks arriving during the fall migration moved on further south for lack of water in many of our best marshes. This was indicated by large groups of ducks being seen one day and gone the next. Undoubtedly our gadwall and baldpate counts would have been higher if better water conditions had existed during the early fall. When the rains finally came in December the coastal marshes rapidly flooded and the ducks on hand spread out everywhere. This in turn made hunting difficult.

Whitefront, blue and snow geese were also very plentiful this year. Concentrations centered around south Gueydan, Lake Arthur west, and Grand Chenier, Louisiana. This large number of geese supplied many fine hours of hunting in southwest Louisiana. All in all, Louisiana's mid-winter waterfowl population looked very good during the census.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: II-4 Title: Wood Duck Trapping and Banding

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Wood duck trapping preparations were emphasised during the early summer of 1966. Traps were constructed and sites were baited only 11 wood ducks were trapped and banded.

Recommendations: This job should be continued with emphasis placed on both bait trapping and drive trapping of wood duck roosts.

Objectives: To band 750 wood ducks as part of the Mississippi Flyway Cooperative wood duck trapping program.

Techniques Used: Float type traps 3' x 4' constructed of 1" x 2" weld wire and mounted on 5' x 7' cypress floats were constructed. Conventional duck traps were constructed of 1" x 2" weld wire with 1" poultry wire used to restrict the opening in the V. Several sites were being baited by the close of this period (June 30, 1966).

Findings: Only 11 wood ducks were banded in Louisiana during this fiscal year. The increased emphasis on this job at the close of this period indicates that we will be able to devote more time to trapping and will band more ducks during fiscal 1966-67.

Prepared by:
Clark M. Hoffpauer
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29-R-13 Name: Statewide Wildlife Investigations

Job No.: II-6 Title: Cooperative Canadian Banding Operation

Period Covered: July 24, 1965 - September 10, 1965

During the fiscal year 1965 Louisiana did not send a man to participate in the Cooperative Canadian banding. The reason for this is that the whole breeding ground banding program was curtailed.

Prepared by:
Clark M. Hoffpauer
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: II-7 Title: Cooperation with Mississippi Flyway Council Technical Section

Period Covered: July 1, 1965 - June 30, 1966

The waterfowl study leader cooperated with the Mississippi Flyway Council Section on all assignments. These included: The Banding School at Reelfoot Lake, Tennessee; The Wing Aging School at Fort Collins, Colorado; Technical Section Spring Meeting at Mobile, Alabama; Technical and Flyway Council Meeting at St. Louis. All assignments at these meeting were complied with. At this time the waterfowl study leader is a member of the Regulations Committee, The Private Holdings Committee and The Blue Goose Committee.

Prepared by:
Clark M. Hoffpauer
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: II-9 Title: Evaluation of Physical Changes in Marsh Ponds on the Wisner and Biloxi Development Projects

Period Covered: July 1, 1965 - June 30, 1966

Abstract: This phase of the study was conducted in October, 1965. Hurricane Betsy went through the area in September, 1965. The overall amount of vegetation in the ponds decreased due to scouring, but the stabilized water areas still contained much more aquatics than the free tide influenced water areas.

Recommendations: This study should be terminated or turned over to District VIII Supervisor, as data is of repetitive nature.

Objectives: 1. Record the number, type, and location of structures and earth dams on the study areas and determine the acreage influence by the improvements.

2. Investigate the physical and vegetative changes in the marsh ponds resulting from the improvements erected on the area.

Techniques Used: The location and date of construction for each structure and earthen dam erected on the Wisner and Biloxi areas were obtained from Robert Beter, Supervisor, of District VIII. All weir locations and study ponds were the same as last year. More detailed maps of most study ponds and structures are attached to Project W-29R-7, Work Plan II, Job No. 10. The techniques used to investigate physical and vegetative changes in the study ponds were those described in the completion report for Job No. 10, Work Plan II, of Project W-29R-7 and 8.

All field sampling was conducted by Robert Beter, Supervisor, District VIII.

Findings: Vegetative transects were sampled on the Biloxi P.S.G. in October, 1965. A total of 18 stations were sampled in the following order: Six ponds behind earthern dams, six ponds behind wooden structures, six ponds as controls.

The six earthern ponds showed a total of 760 ml. of widgen grass, the six wooden structures had a total of 460 ml., and the six controls had a total of 435 ml. of widgeon grass. Earthern dam ponds showed four ponds out of six with aquatics, wooden structured ponds had five out of six ponds with aquatics, while the controls had three ponds out of six with a complete absence of aquatics.

It is obvious that the earthern and wooden dams had a larger volume of aquatics and were more evenly distributed than the controls as is evidenced by the fact that aquatics were present in five of six wooden controlled ponds, four of six earthern controlled, and absent in three of six controlled ponds.

The total chlorides were lowest in the controls, second highest in wooden structured ponds, and highest in the earthern ponds.

This study was made approximately one month after Hurricane Betsy rampaged through S.E. Louisiana. In the opinion of this writer widgeon grass was reduced somewhat by the storm.

Vegetative Transect
October 26 & 27, 1965

Earthern	ml Widgeon Grass	Wooden	ml Widgeon Grass	Controls	ml Widgeon Grass
1	70	7	75	13	0
2	410	8	40	14	0
3	40	9	0	15	420
4	0	10	220	16	10
5	0	11	15	17	5
6	240	12	110	18	0
Total	760 ml		460 ml		435 ml

Biloxi P.S.G.
Vegetative Transect
October 26 & 27, 1965

CHLORIDES

1. C-1: 10.05×10^3 ppm. - Earthern dam
2. C-2: 7.96×10^3 ppm. - Earthern dam
3. C-3: 8.73×10^3 ppm. - Earthern dam
4. C-4: 8.38×10^3 ppm. - Earthern dam
5. C-5: 8.80×10^3 ppm. - Earthern dam
6. C-6: 10.71×10^3 ppm. - Earthern dam
7. W-1: 8.50×10^3 ppm. - Wooden structure
8. W-2: 8.71×10^3 ppm. - Wooden structure
9. W-3: 8.51×10^3 ppm. - Wooden structure
10. W-4: 8.47×10^3 ppm. - Wooden structure
11. W-5: 9.00×10^3 ppm. - Wooden structure
12. W-6: 8.71×10^3 ppm. - Wooden structure
13. E-1: 8.86×10^3 ppm. - Controls
14. E-2: 8.63×10^3 ppm. - Controls
15. E-3: 8.80×10^3 ppm. - Controls
16. E-4: 9.30×10^3 ppm. - Controls
17. E-5: 8.82×10^3 ppm. - Controls
18. E-6: 9.45×10^3 ppm. - Controls

Biloxi P.S.G.
Vegetative Transect
October 26 & 27, 1965

TOTAL CHLORIDES
(ppm)

CONTROLS	EARTH	WOOD
10,050	8,860	8,500
7,960	8,630	8,710
8,730	8,800	8,510
8,380	9,300	8,470
8,800	8,820	9,000
10,710	9,450	8,710
6(54,630	6(53,860	6(51,900
9,105	8,977	8,650
Highest	Second Highest	Least

In late spring of 1966 vast stands of widgeon grass were seen throughout the Biloxi Public Shooting Grounds during aerial flights over the area.

Prepared by:
Clark M. Hoffpauer
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: II-12 Title: Mottled Duck Transplant Study

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Twenty-four pairs of adult mottled ducks were released at Holly Ridge, Louisiana. Nesting success is evident.

Recommendations:

1. This study should be continued for another year.
2. Use only the George Franklin Farm for release site.
3. Make large release of at least 100 pinioned immature birds.

Objectives: This job is designed to evaluate the mottled duck as a transplant to permanent fresh water areas of up-state Louisiana.

Techniques Used: Class I, II, III and adult birds were transplanted to North Louisiana. They were released in natural surroundings after holding Class I & II ducklings for 3 weeks.

Findings: The Collinston release has been abandoned due to the predator problem. The site was used for 3 years by thirty-two adult birds. No nests were recorded and now no adult ducks remain in the area.

The Holly Ridge site has had three releases totaling 126 mixed class birds. The last release was 24 pinioned adult unmated pair. Three broods have been observed totaling 22 young ducks. The ducks have spread out from the Bee Bayou release site and 2 pairs have been seen on surrounding farm ponds.

There is still evidence of predators as two adults have been found along the Bee Bayou apparently a victim of a fox or raccoon. These birds were in the flightless stage when killed. It is the opinion of the study leader that the largest single factor inhibiting the nesting success of ground nesters in North Louisiana is predators.

Prepared by:	Approved by:
Clark M. Hoffpauer Study Leader	Robert E. Murry Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: II-13 Title: Effect and Extent of Oil Field Canals on Louisiana Marshes

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Canal locations were mapped and interview data recorded.

Recommendations: It is recommended that this job be continued as a means of compiling information on the changes in historical drainage patterns of the Louisiana marshes and the resulting effects on vegetation.

Objectives: Determine effect on portions of Louisiana marshes as influenced by oil field canals. Determine extent of existing canals.

Techniques Used: New structures were sketched on topographic maps of the areas of current oil and gas exploration and development. Topographic quadrangle maps were substituted for aerial photographs because the Commission airplane was unavailable for aerial photography during September.

The Study Leader discussed the scope of pending canal developments with various marshland owners, land managers and petroleum companies in order to compile information on the number of new canals to be expected.

Findings: It was found that a simple inventory of the number of canals, and a compilation of their physical features such as length, width, and depth, does not give a reliable indication of the magnitude of the changes in marsh ecology.

Maps and records are filed for future comparisons.

Prepared by:
Clark M. Hoffpauer
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

MOURNING DOVE STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No. III-1 Title: Population and Productivity

Period Covered: July 1, 1965 - June 30, 1966

Abstract: During the period July 1, 1965 through June 30, 1966 two census methods, the call-count and the random road count, were employed in an effort to determine trends in the statewide mourning dove population. The call-count survey indicates a 12.2% decrease in the number heard from the 1965 level. The average May-June random road count indicates a 10.5% increase from the 1965 level at that time.

Recommendations: The census methods currently available have serious limitations; therefore, a continued comparison and evaluation of both the call-count and random road count are recommended in an effort to more effectively determine trends in the mourning dove population.

Objectives: This job was designed to provide an index to the mourning dove population. The size of the breeding population and a measure of production are needed to assist in the formulation of hunting regulations.

Techniques Used: During the period from July 1, 1965 through June 30, 1966, two census methods were employed in an effort to determine trends in the statewide mourning dove population. The call-count survey was conducted from May 20 through June 10, while the random road count data were collected during year-round daylight travel in accordance with a set of operational procedures.

Findings: The call-count survey provides the only national population index presently available, but it furnishes an index to the breeding

population only and does not serve as an indicator of production. The random road count, more properly called the haphazard road count, has the advantage of censusing production as well as the breeding population. Inspection of the statewide random road count data reveals a general upward trend in the dove population during the past year.

An increase of 10.5% in the number of doves seen was evident during the May and June, 1966 random road count when compared to the same period in 1965. The call-count reflects a decrease of 12.2% in the number of doves heard during the 1966 survey as revealed below:

Call-Count (May-June)
(Average No. per Route)

	1965	1966	Trend
No. Heard	12.9	11.4	12.2% decrease

Random Road Count
(Doves/100 Miles)

May-June	1965	1966	Trend
	4.00	4.42	10.5% increase

For the past several years trends in the call-count and road-count have agreed. This year, however, an apparent conflict exists between the two census techniques.

Inspection of the road count data reveals a substantial increase in the number of doves seen during October, November, December, 1965, and January, 1966 when compared to the same months of the pervious year. The increased size of the dove population in the state at that time is substantiated by the telephone kill survey which indicated a kill of 1,687,900 doves as compared to only 944,400 during the 1964-65 hunting season.

Prepared by:
Lawrence D. Soileau
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

TABLE I

DOVE RANDOM ROAD COUNT

District I

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1965	4,619	206	4.46
August	1,569	99	6.30
September	2,045	47	2.30
October	2,496	49	1.96
November	2,749	99	3.60
December	2,345	74	3.16
January, 1966	3,176	154	4.85
February	2,591	49	1.89
March	3,941	128	3.25
April	1,363	31	2.27
May	1,506	56	3.72
June	6,716	178	2.65

District II

July, 1965	*		
August	1,883	109	5.79
September	3,449	48	1.39
October	2,167	12	.55
November	1,206	0	.00
December	1,184	0	.00
January, 1966	1,959	9	.46
February	1,604	8	.50
March	5,296	52	.98
April	1,251	18	1.44
May	1,499	114	7.60
June	2,109	15	.71

*No data

TABLE I (Cont'd)

DOVE RANDOM ROAD COUNT

District III

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1965	4,371	228	5.21
August	1,449	181	12.49
September	2,414	141	5.84
October	3,232	69	2.13
November	1,025	15	1.46
December	1,577	77	4.88
January, 1966	1,051	16	1.52
February	4,378	89	2.03
March	2,836	44	1.55
April	2,867	117	4.08
May	3,680	201	5.46
June	3,839	167	4.35

District IV

July, 1965	1,001	106	10.59
August	312	50	16.03
September	810	59	7.28
October	966	25	2.59
November	859	102	11.87
December	1,380	70	5.07
January, 1966	1,494	90	6.02
February	752	69	9.18
March	1,914	60	3.13
April	1,028	96	9.34
May	1,343	121	9.01
June	1,869	142	7.60

TABLE I (Cont'd)

DOVE RANDOM ROAD COUNT

District V

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1965	2,463	316	12.83
August	3,072	247	8.04
September	4,052	193	4.76
October	2,816	313	11.12
November	2,246	62	2.76
December	109	0	.00
January, 1966	938	5	.53
February	2,779	31	1.12
March	3,301	48	1.45
April	3,110	99	3.18
May	4,418	346	7.83
June	3,353	222	6.62

District VI

July, 1965	1,771	36	2.03
August	1,878	39	2.08
September	2,622	17	.65
October	1,747	33	1.89
November	1,739	14	.80
December	1,947	58	2.98
January, 1966	1,745	23	1.32
February	2,040	18	.88
March	2,101	38	1.81
April	2,469	23	.93
May	3,659	42	1.15
June	3,945	58	1.47

TABLE I (Cont'd)

DOVE RANDOM ROAD COUNT

District VII

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1965	282	9	3.19
August	*		
September	*		
October	*		
November	104	0	.00
December	298	1	.34
January, 1966	*		
February	*		
March	*		
April	162	0	.00
May	158	1	.63
June	83	1	1.20

District VIII

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1965	1,208	9	.74
August	993	5	.50
September	1,206	1	.08
October	1,334	4	.30
November	*		
December	101	0	.00
January, 1966	21	0	.00
February	*		
March	*		
April	149	9	6.04
May	222	33	14.86
June	*		

*No data

TABLE I (Cont'd)

DOVE RANDOM ROAD COUNT

Statewide

Month	Miles Traveled	Doves Recorded	1965-66 No. Doves Per 100 Miles	1964-65 No. Doves Per 100 Miles
July, 1965	15,715	910	5.79	3.61
August	11,156	730	6.54	3.94
September	16,598	506	3.05	3.26
October	14,758	505	3.42	1.43
November	9,928	292	2.94	1.64
December	8,941	280	3.13	1.55
January, 1966	10,384	297	2.86	1.67
February	14,144	264	1.87	1.67
March	19,389	370	1.91	1.98
April	12,399	393	3.17	2.52
May	16,485	914	5.54	5.03
June	21,914	783	3.57	3.27

TABLE II

CALL-COUNT ROUTES

Comparison of 1965 and 1966 Routes

	No. of Doves Heard		No. of Doves Seen	
Route No.	1965	1966	1965	1966
86-R	20	7	44	28
90-R	18	13	12	20
94-R	63	47	25	68
105-R	29	36	11	17
110-R	12	19	12	31
121-R	19	21	2	11
121A-R	2	0	0	0
122-R	1	1	0	1
134-R	4	5	2	4
135-R	23	23	14	11
137-R	2	5	0	1
137A-R	4	7	21	26
167-R	11	9	9	10
198-R	12	7	2	7
202-R	0	1	0	0
216-R	2	7	0	6
217-R	0	0	2	2
228-R	15	8	27	10
243-R	9	0	0	0
Total	246	216	183	253
Average No. Per Rt.	12.9	11.4	9.6	13.3

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

MOURNING DOVE STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: III- 2 Title: Dove Trapping and Banding

Period Covered: July 1, 1965 - June 30, 1966

Abstract: A total of 1,328 doves was banded in the state from July 1, 1965 through June 30, 1966.

Recommendations: Permanent trapping and banding stations should be operated as part of the national pre and post-season banding program. The pre-season banding period is defined as the period from June through August and the post-season period is from January through March. The state's quota is 2,000 doves during each period.

Objectives: This job was designed to band a large number of mourning doves in an effort to better understand migrational patterns and mortality factors.

Techniques Used: Trapping was done with baited wire box traps which were operated at permanent stations throughout the trapping season. The stations were baited continuously through the trapping season and the traps set and run once each week.

Findings: The results of the trapping and banding program from July 1, 1965 through June 30, 1966 are included in Table III. A total of 1,328 doves was banded in the state.

TABLE III

Mourning Dove - Trapping and Banding
July 1, 1965 - June 30, 1966

Month	Number Banded
District I	
July, 1965	72
August, 1965	94
June, 1966	86
District II	
June, 1966	182
District III	
July, 1965	70
August, 1965	10
February, 1966	14
March, 1966	31
June, 1966	183
District IV	
June, 1966	90
District V	
July, 1965	59
August, 1965	86
February, 1966	11
March, 1966	54
June, 1966	195
District VI	
June, 1966	91

Prepared by:
Lawrence D. Soileau
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

MOURNING DOVE STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: III-3 Title: Dove Kill Estimation

Period Covered: July 1, 1965 - June 30, 1966

Abstract: An estimated total of 1,687,900 doves was killed in the state by persons residing in a household with a telephone. A total of 407,800 was killed during the first segment of the hunting season, 731,500 during the second and 548,600 during the third.

Recommendations: The telephone survey as a method of estimating dove harvest should be continued as part of the Eastern Management Unit telephone kill survey.

Objectives: This job was designed to provide an estimated index of statewide dove harvest during the three segments of the hunting season.

Techniques Used: A random sample of 3,600 residential telephones was selected from the 672,000 residential telephones in the state by the Institute of Statistics, North Carolina State University. Selected telephone directories were secured and divided into the proper number of sampling units. Non-residential telephones were deleted from the selected sample units in the directories. A random sample of residential subscribers within the sampling units was selected.

Individual questionnaires were printed and the name and telephone number of each selected subscriber were placed on the appropriate questionnaire. The questions asked during the telephone interview related to the number of dove hunting trips and kill of the subscriber and others residing in the household.

In order to interview by telephone the 3,600 randomly selected subscribers, statewide "Wide Area Telephone Service" was obtained. This service enabled all telephone interviews to be conducted from the Baton Rouge office by one operator. One-third of the selected sample was called immediately at the close of each segment of the hunting season and questioned concerning their dove hunting trips and kill during the season segment just completed.

Findings: Telephone interviews revealed that an estimated total of 1,687,900 doves was killed in the state by persons residing in a household with a telephone. This kill was distributed among the three segments of the hunting season as indicated in the following table.

Estimates From Dove Hunters Residing in Households With a Telephone

1965-66 Hunting Season

Hunting Season Segment	Estimated Hunters	Estimated Trips	Estimated Kill
Sept. 4-14	44,500	106,900	407,800
Oct. 9-Nov. 7	69,200	208,600	731,500
Dec. 18-Jan. 15	46,200	148,000	548,600

Prepared by:
Lawrence D. Soileau
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

MOURNING DOVE STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: III-4 Title: Dove Banding Analysis

Period Covered: July 1, 1965 - June 30, 1966

No work was accomplished on this job. The resignation of Project Leader, FW-2R, left the dove study leader in temporary charge of the deer kill mail survey which utilized all the resources of the data processing center. With the assignment of a new leader to Project FW-2R, the tabulation of past banding and recovery information is anticipated during the next year.

Prepared by:
Lawrence D. Soileau
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: V-1 Title: Population Trends by Random Road Counts

Period Covered: July 1, 1965 - June 30, 1966

Abstract: The annual index figure which is based on the number of rabbits observed per 100 miles of random daylight travel was 0.45 for the period covered in this report. This figure was an overall statewide average obtained from 163,877 miles of travel in the eight geographical districts. During the six preceding study years the average was 0.52, 0.55, 0.63, 0.66, 0.69, and 0.70 respectively.

Recommendations: This job is designed primarily to provide simple indices to the rabbit population. Although it has serious limitations the job should be continued in its present form. A backlog of information gathered by this method is available for comparison. Also, comparisons can be made between this and other phases of the rabbit project. It is a job that is performed by the biologists while conducting routine duties; hence, very few man days are necessary for the fulfillment of this job.

Objectives: A better understanding of seasonal and annual fluctuations in rabbit numbers is desirable for management planning. This job is designed to determine population or activity trends of rabbits throughout the state.

Techniques Used: This is a year-round job that is performed while conducting routine duties in the various districts. Data are collected and analyzed on a district basis. The work is assigned to all biologists and other designated personnel of the

Pittman-Robertson section of the Fish and Game Division. This includes district supervisors, district biologists, project leaders, study leaders and biological aides. Method used to obtain the data is as follows: When traveling to perform routine duties the driver of the vehicle records the number of dead and alive rabbits observed. The speedometer reading is recorded at the beginning and completion of each trip. This information is kept only during daylight hours and by day, month, and year. Random road count data are mailed to the study leader at the end of each month.

gs:

Table I through IV show results of the random road counts by district for the period July, 1965 through June, 1966. Table V presents the statewide random road count on a monthly and annual basis.

District I is located in northwest Louisiana. It is comprised of the following parishes: Caddo, Bossier, Webster, Claiborne, DeSota, Red River, and Bienville. Table I shows a total of 33,666 miles of random daylight travel logged during the twelve month period. The number of rabbits recorded per 100 miles of travel was 0.22, the previous year figure was 0.26, and in 1963-64 it was 0.40. In 1962-63 it was 0.54, 0.49 in 1961-62, and 0.45 in 1960-61, but in 1959-60 the figure was 0.14.

The parishes of Union, Morehouse, West Carroll, East Carroll, Richland, Ouachita, Lincoln, and Jackson comprise District II which is in northeast Louisiana. In this district 23,687 miles of random travel was recorded during the year. The number of rabbits recorded for each 100 miles of travel was 0.35. For the previous two years the figure was 0.45 and 0.85, respectively. In 1962-63 it was 0.91 and in 1961-62 the figure was 1.22. In 1960-61 the figure was 1.19.

District III is made up of six parishes in central and west-central Louisiana. They are Winn, Grant, Rapides, Natchitoches, Sabine, and Vernon. For this district the total number of random miles logged was 31,921 and the average number of rabbits recorded for each 100 miles of travel was 0.61. During the previous year the

figure was 0.77. Two years prior to this it was 0.61. In 1962-63 it was 0.62, and in 1961-62 it was 0.71.

District IV is comprised of Franklin, Caldwell, LaSalle, Catahoula, Madison, Tensas, and Concordia. It is located in east-central Louisiana. A total of 10,345 random miles was recorded during the period covered in this report. The average number of rabbits tallied per 100 miles of travel was 0.52. Over the pervious twelve months period a figure of 0.48 was recorded. In 1963-64 it was 0.36, 0.32 in 1962-63, and in 1961-62 it was 0.42.

The following parishes in southwest Louisiana make up District V: Beauregard, Allen, Evangeline, Jeff Davis, Acadia, Calcasieu, Cameron, and Vermilion. The period covered in this report showed 30,428 miles logged. In this district the average number of rabbits recorded per 100 miles was 0.56. It was 0.75 in 1964-65, 0.73 in 1963-64. For the two years prior to that the figure was 0.63 and 0.81 respectively.

Seven parishes in south-central Louisiana are in District VI. It is comprised of Avoyelles, St. Landry, Pointe Coupee, St. Martin, Lafayette, West Baton Rouge, and Iberville. A total of 27,505 miles of random travel was recorded during the twelve months period. For each 100 miles of travel the average number of rabbits recorded was 0.44. During the previous two study periods the figure was 0.45 and 0.52, respectively. In 1962-63 it was 0.66 and 0.88 in 1961-62.

District VII comprises nine parishes in southeast Louisiana. They are East Feliciana, West Feliciana, St. Helena, Tangipahoa, Washington, St. Tammany, Livingston, East Baton Rouge and Ascension. Randomly traveled miles recorded in this district during the twelve month period amounted to 1,087. The average number of rabbits recorded per 100 miles was 0.28. In 1964-65 the figure was 0.24. For the four study years previous to this the figure was 0.57, 0.51, 0.27 and 0.20, respectively.

District VIII comprises the remaining parishes of which most are located along the

coast in southeast Louisiana. During the twelve month period 5,238 random miles were logged. The average number of rabbits recorded per 100 miles of travel was 0.90. For the previous two years the figure was 0.04 and 0.24 respectively.

In conclusion, the rabbit random road counts were conducted in each of the eight districts during the period covered in this report, July 1, 1965 to June 30, 1966. The data were collected from a total of 163,877 randomly traveled miles during the study period. For the eight districts the overall average number of dead and alive rabbits recorded for each 100 miles of travel was 0.45. See Table V. Over the previous six years the study it was 0.52, 0.55, 0.63, 0.66, 0.69, and 0.70 respectively.

Prepared by:	Approved by:
Jack O. Collins Study Leader	Robert E. Murry Project Leader

Date ____________________

TABLE I

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

District I

	No.Miles	Rabbits Recorded			No. Rabbits Recorded
Month	Traveled	Dead	Alive	Total	Per 100 Miles of Travel
July, 1965	4,619	1	17	18	0.39
August	169	0	0	0	0.00
September	2,045	1	0	1	0.05
October	2,496	1	0	1	0.04
November	2,749	1	0	1	0.04
December	2,345	2	0	2	0.09
January, 1966	3,176	4	0	4	0.13
February	2,541	2	0	2	0.08
March	3,941	10	0	10	0.25
Arpil	1,363	2	4	6	0.44
May	1,506	2	1	3	0.20
June	6,716	5	21	26	0.39
TOTALS	33,666	31	43	74	0.22

District II

July, 1965	--	-	-	-	--
August	1,889	4	2	6	0.31
September	3,549	13	1	14	0.39
October	2,167	1	0	1	0.05
November	1,216	1	0	1	0.08
December	1,184	2	0	2	0.17
January, 1966	1,959	4	0	4	0.20
February	1,604	3	0	3	0.19
March	5,296	38	5	43	0.81
April	1,215	0	1	1	0.08
May	1,499	7	0	7	0.47
June	2,109	1	0	1	0.05
TOTALS	23,687	74	9	83	0.35

TABLE II

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

District III

Month	No. Miles Traveled	Rabbits Recorded			No. Rabbits Recorded Per 100 Miles of Travel
		Dead	Alive	Total	
July, 1965	4,371	8	1	9	0.21
August	1,449	2	0	2	0.14
September	2,414	3	0	3	0.12
October	3,232	24	1	25	0.77
November	1,025	5	0	5	0.49
December	1,579	12	0	12	0.76
January, 1966	1,051	7	0	7	0.67
February	4,298	50	1	51	1.19
March	2,116	22	2	24	1.13
April	2,867	18	3	21	0.73
May	3,680	18	0	18	0.49
June	3,839	8	7	15	0.39
TOTALS	31,921	177	15	192	0.61

District IV

Month	No. Miles Traveled	Dead	Alive	Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1965	--	-	-	-	--
August	86	1	0	1	1.16
September	--	-	-	-	--
October	255	3	0	3	1.18
November	446	7	0	7	1.57
December	1,207	17	0	17	1.41
January, 1966	1,383	6	0	6	0.43
February	809	2	0	2	0.25
March	1,919	8	0	8	0.42
April	1,028	5	0	5	0.49
May	1,343	1	0	1	0.07
June	1,869	1	3	4	0.21
TOTALS	10,345	51	3	54	0.52

TABLE III

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

District V

Month	No. Miles Traveled	Rabbits Recorded Dead	Alive	Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1965	2,508	7	26	33	1.32
August	737	1	2	3	0.41
September	4,115	16	6	22	0.53
October	2,816	2	0	2	0.07
November	2,246	14	0	14	0.62
December	109	1	0	1	0.92
January, 1966	938	6	0	6	0.64
February	2,779	10	1	11	0.40
March	3,301	18	1	19	0.58
April	3,110	14	6	20	0.64
May	4,416	13	16	29	0.67
June	3,353	2	8	10	0.30
TOTALS	30,428	104	66	170	0.56

District VI

July, 1965	1,771	1	1	2	0.11
August	1,843	2	0	2	0.11
September	2,622	10	3	13	0.50
October	1,747	6	3	9	0.52
November	1,799	9	2	11	0.61
December	1,947	8	2	10	0.51
January, 1966	1,592	9	2	11	0.69
February	2,040	19	2	21	1.03
March	2,101	11	1	12	0.57
April	2,469	5	2	7	0.28
May	3,729	7	3	10	0.27
June	3,845	13	1	14	0.36
TOTALS	27,505	100	22	122	0.44

TABLE IV

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

District VII

Month	No. Miles Traveled	Rabbits Recorded Dead	Alive	Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1965	282	1	0	1	0.35
August	--	-	-	-	--
September	--	-	-	-	--
October	--	-	-	-	--
November	104	0	0	0	0.00
December	298	0	0	0	0.00
January, 1966	--	-	-	-	--
February	--	-	-	-	--
March	--	-	-	-	--
April	162	1	1	2	1.23
May	158	0	0	0	0.00
June	83	0	0	0	0.00
TOTALS	1,087	2	1	3	0.28

District VIII

Month	No. Miles Traveled	Rabbits Recorded Dead	Alive	Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1965	1,282	0	0	0	0.00
August	993	0	0	0	0.00
September	1,206	29	0	29	2.40
October	1,334	5	0	5	0.37
November	--	-	-	-	--
December	101	0	0	0	0.00
January, 1966	21	0	0	0	0.00
February	--	-	-	-	--
March	--	-	-	-	--
April	149	3	4	7	4.70
May	152	3	3	6	3.95
June	--	-	-	-	--
TOTALS	5,238	40	7	47	0.90

TABLE V

ANNUAL RABBIT RANDOM ROAD COUNT - STATEWIDE

Month	No. Miles Traveled	Rabbits Recorded Dead	Alive	Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1965	14,833	18	45	63	0.42
August	7,166	10	4	14	0.20
September	15,951	72	10	82	0.51
October	14,047	42	4	46	0.33
November	9,585	37	2	39	0.41
December	8,770	42	2	44	0.50
January, 1966	10,120	36	2	38	0.38
February	14,071	86	4	90	0.64
March	18,674	107	9	116	0.62
April	12,363	48	21	69	0.56
May	16,483	51	23	74	0.45
June	21,814	30	40	70	0.32
TOTALS	163,877	579	166	745	

Overall Average - - - - - - - - 0.45

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: V-3 Title: Rabbit Trapping and Tagging

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Forty-two rabbits, six armadillos, two birds, one raccoon, and 10 o'possums were trapped.

Experimental baitless trapping for rabbits was conducted on private lands in Evangeline Parish and on property of the University of Southwestern Louisiana in Iberia Parish.

Records were maintained for a total of 563 trap set exposures.

Recommendations: This job should be terminated since the objectives of the job have been successfully accomplished.

Objectives:

1. To experiment with trapping techniques.
2. To gather data on factors influencing trapping success.

Techniques Used: Traps 9" x 10" x 36" which were constructed of 1" x 2" fourteen gauge weld wire were used. Wire wings made of 20 gauge poultry wire and held erect by 1" x 2" stakes four feet long extended from fifteen to thirty feet on both sides of the trap. Both two and three feet high wings were used and mesh sizes used were 1" and 2" with primary consideration being placed on the use of the larger mesh due to ease of handling and less expense involved. In most instances an angle of approximately 45° was made in the fence at the end of each wing. A trap was placed at each angle in the fence which may contain from one to ten or more. This may be described as a zig zag trapping technique. Straight line

fences can be effective under some conditions and were used on some sites.

On those sites where intermittent tests were conducted all traps were left open on both ends when not in daily use in order to allow free movement through fences.

No bait was used.

During trapping periods of from one to four days all traps were left set, but daily inspection of each was made. On final trapping days all doors were either tied open or fences removed from trapping site.

All rabbits trapped were tagged in each ear and release immediately after catch.

All mammals other than rabbits were killed immediately before or after removal from trap. Consequently, there were no repeat catches on any animals but rabbits.

Findings:

Table I and II show results of trapping in Evangeline and Iberia Parishes. On both of these areas the rabbit populations on a per acre basis was much higher than it was on the Thistlethwaite Game Management Area in St. Landry Parish where the previous work was carried out.

For other data not included in this report refer to W-29R-10, 11, and 12, Work Plan V, Job 3.

Experimental trapping was conducted on private property in Evangeline Parish between July 27 and October 13, 1965. Traps were set on fifteen different nights during this period. On a single fence the number of traps varied from two to twenty, but the total number of traps set per night varied from seventeen to forty-three. See Table I.

Total trap sets in the Evangeline Parish study amounted to 414. During these efforts 21 swamp rabbits (Sylvilagus aquaticus), and four cottontails (Sylvilagus floridanus) were caught. Thus, one rabbit was caught for every sixteen trapping efforts. Other animals

trapped were as follows: two birds, six armadillos (Dasypus novemcinctus), seven o'possums (Didelphis virginiana), and one raccoon (Procyon lotor).

Rabbit trapping was conducted on University of Southwestern Louisiana property in Iberia Parish between November 15, 1965 and April 14, 1966. See Table II. Traps were set on nine different nights. Forty traps were used, but the number set on an individual night varied from ten to twenty-one. The total number of traps set amounted to 149. During these efforts twelve swamp rabbits and five cottontails were caught. Thus one rabbit was caught for every eight trapping efforts. Three o'possums comprised the remainder of the catch.

On both areas major emphasis was placed on comparisons between two and three foot high fences.

In the Evangeline Parish area where the land was very hilly three foot high fences proved to be more effective than the lower height fence. On the other hand, land was very level on the Iberia Parish trapping site and two foot high fences were as efficient as the higher ones.

For both areas the number of rabbits caught was one for every thirteen trapping efforts.

In conclusion, experimental trapping by use of the baitless technique which involves using weld wire traps 9" x 10" x 36" with wire wing extensions of varying lengths is an efficient method to trap random rabbits. It eliminates much bias that occurs when bait is used. Also, other animals entering the traps are not a serious problem. Cost of the operation is small when compared to other trapping methods.

Prepared by:
Jack O. Collins
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

TABLE I

Results of Rabbit Trapping
Cazan Lake Property, Evangeline Parish - July-October, 1965

Date of	No. of Traps	No. of Rabbits Caught			Other Animals Caught	
Trapping	Set	Swamp	Cottontail	Repeat	Species	No.
7/27/65	24	3	0	0	Armadillo	2
7/27/65	24	0	0	0	Mockingbird	1
7/28/65	24	1	1	0	Bobwhite Quail	1
7/29/65	29	1	0	0	O'possum	2
8/18/65	22	2	0	0	0	
8/19/65	22	1	0	0	Armadillo	2
					O'possum	1
8/20/65	20	0	0	0	0	
9/8/65	42	3	2	1	0	
9/15/65	22	2	0	0	O'possum	1
9/15/65	39	0	0	0	O'possum	1
9/17/65	39	1	0	0	O'possum	1
					Armadillo	1
9/22/65	28	0	0	0	Raccoon	1
9/23/65	43	2	1	0	Armadillo	1
10/8/65	19	2	0	0	O'possum	1
10/13/65	17	3	0	0	0	

TABLE II

Results of Rabbit Trapping
U.S.L. Property, Iberia Parish - Nov. 1965-April, 1966

Date of	No. of Traps	No. of Rabbits Caught			Other Animals Caught	
Trapping	Set	Swamp	Cottontail	Repeat	Species	No.
11/15/65	18	2	0	0	0	
11/16/65	16	1	1	0	0	
12/13/65	21	2	2	0	0	
1/31/66	10	2	0	0	0	
4/5/66	19	0	0	0	0	
4/6/66	18	2	1	0	0	
4/12/66	16	0	0	0	O'possum	3
4/13/66	16	3	0	0	0	
4/14/66	15	0	1	0	0	

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: V-5 Title: Habitat Manipulation for Cottontail Rabbits

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Intensive efforts were made towards the location of a site for this study. A tentative selection was made on property near New Iberia, Louisiana. However, the site was rejected because of the cost involved in leasing the land.

Recommendations: Efforts to initiate this job should be discontinued since at the present time a suitable site for the study is not available.

Objective: To investigate techniques for developing maximum cottontail populations through habitat alterations.

Techniques Used: Preliminary planning and intensive work towards the location of a study site were the major phases of the work conducted.

Findings: A potential study site was located near New Iberia, Louisiana on property controlled by the Iberia Parish Police Jury and supervised by the Iberia Parish Airport Commission. This body tentatively agreed to lease fifty acres of farm land to the Louisiana Wild Life and Fisheries Commission at $10.00 per acre per year, and the proposal was presented to the Commission for approval. It was rejected. Consequently, construction of fences and other phases of the job were not started.

Prepared by:
Jack O. Collins
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

SQUIRREL STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: VI-2 Title: Publication on Squirrel Research

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Field data have been analyzed and presented in the job completion reports - squirrel investigations.

Recommendations: This job should be terminated. The publication is now in the process of being prepared.

Objectives: To prepare a popular publication for distribution to interested citizens and sportsmen from squirrel data that has accumulated through the 1952-1965. The pamphlet will present facts and figures collected on fox and gray squirrels in Louisiana pertaining to life history, habits, population fluctuations and the effect that gunning has on the squirrel population.

Techniques Used: Collection of data from outlined research jobs.

Findings: Preparation of this publication is now in process with the following topics completed: species and races, life history and habits, movements and sex ratios and emasculation. It is intended to develope these additional subjects: population densities, population fluctuations, the effects of gunning pressure, mortality factors and future prospects (a short discussion on the removal of squirrel habitat as a result of the recent soybean boom).

Prepared by:
J. B. Kidd
District VI Supervisor

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

TURKEY STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: VIII-1 Title: A Comparison of Stocking Success

Period Covered: July 1, 1965 - June 30, 1966

Abstract:

Live trapped turkey, descendants of game farm stock, were stocked to Red Dirt Wildlife Management Area prior to the breeding seasons of 1958 and 1959 and failed to establish a healthy population through the 1966 breeding season.

Live trapped turkey from wild stock procured in Louisiana and Florida were released on Bodcau Wildlife Management Area from 1962 to 1964. At the termination of this study the turkey population on Bodcau was judged to be expanding.

Recommendations:

Since the Red Dirt turkey population has failed to respond to what is felt to be excellent protection and extensive habitat development it is recommended that wild trapped birds be used in an attempt to establish a population capable of producing a huntable surplus.

Birds, wild trapped from Bodcau, if successful, would conclusively demonstrate that the quality of the birds rather than the quality of the habitat had been responsible for the earlier failure. Failure of the Bodcau birds on Red Dirt would lead us to suspect a yet unquestioned habitat deficiency.

Objectives:

To compare the survival and quality of native wild turkey used in restocking with that of stock which originated with game farm birds.

To compare the value of native wild turkey to that of descendants of game farm turkey as sources for restocking unoccuppied ranges in La.

Techniques Used:

RED DIRT

In February of 1958 permission was obtained from Mrs. Edna Miller, widow of former Predator Control Supervisor Joe Miller, to trap and move turkey from her property in the area of Northeast Vernon Parish known as Hick's Crossing. The Project Leader baited a woodlot of pulpwood size pines and when turkey use of bait was noted he constructed a simple net wire trap with a ditch entrance. The corn used for bait was replaced frequently and turkey were baited into the trap which was complete except for the absence of a top. A 2" square mesh nylon deer trap netting top was made and was installed only when the trap was set.

Two trap efforts in March of 1958 yielded five mature hens and one mature tom. These birds were released on a Red Dirt food plot known as the "Dago Branch Plot".

Post release care consisted of providing welfare feed of shelled yellow corn every several days. Frequent inspections were made.

In March of 1959 five more hens were moved to Red Dirt and released at the same point. Three of these were mature hens and two were yearlings. An adult hen from the 1958 release was trapped on the Cypress Road more than a mile north of the area. She was trapped and returned after raising a brood of at least three poults.

During the fall of 1958 several food plots were planted to Bahia grass (*Paspalum notatum*) and land was prepared for a spring planting of chufa (*Cyperus esculentus*) and browntop millet (*Panicum ramosum*).

By the 1959 growing season the cultivated area of Red Dirt was increased from less than eight to about 39 acres. Most of this development was aimed at providing better turkey foods with Bahia, browntop, chufa, and winter wheat.

During the spring of 1960 and the spring of 1961 turkey were baited to five net wire turkey traps and birds were trapped and banded.

During 1960 and 1961 the agricultural acerage was increased and some forest plots were mowed to promote grasses for turkey.

Most of the information regarding the fate of the stocking has been solicited from the personnel assigned to Red Dirt. The Project Leader made frequent field trips there through the 1961 rearing season and much less frequently since that time.

BODCAU

In the spring of 1962 nine adult hen turkey from St. Helena Parish and three adult toms from Union Parish were released at Bodcau. The following spring two more adult hens from St. Helena were stocked there. In 1964 seven adult hens and two yearling toms, procured from the Florida Game and Fresh Water Fish Commission, were released there.

Agricultural developments were made for quail, doves, waterfowl, deer, and turkey, with all of them expected to improve the turkey habitat.

The Project Leader has visited the Bodcau turkey release no more than twice each year since the first birds were released. Turkey information was solicited from other Commission personnel working on Bodcau.

Findings:

The writer found no turkey sign on Red Dirt during the 1965-66 fiscal year. Reports were received from area personnel that a small band of birds residing mostly off the area did occasionally range into the Wildlife Management Area.

Spring gobbling heard by district personnel revealed the presence of several mature toms on Bodcau. Turkey sign was frequently encountered around wildlife developments. Turkey sightings are fairly commonplace and one brood of poults was confirmed. Personnel working on the area are in agreement that the Bodcau turkey population is presently expanding.

Prepared by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

TURKEY STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: VIII-2 Title: Turkey Study - Productivity

Period Covered: July 1, 1965 - June 30, 1966

Abstract: A total of 433 wild turkeys were recorded during the project periods. Data loss, when district office was destroyed by fire, prevented drawing meanful conclusions. Field notes recovered showed 118 birds were sighted in September, 1965. When comparing data sheets, some 315 birds cannot be verified as to date, etc.

Recommendations: It is recommended that this job be terminated at the close of this project year. Further research should be incorporated into a state-wide research program.

Objectives: The objectives were to furnish additional data in order to determine nesting success, poult survival and hen-poult ratios of wild turkey flocks in Morehouse Parish.

Techniques: Field observations were made by the Area Supervisor during the course of regular work on the area. All birds sighted were plotted on a G.M.A. map and dated. Turkeys observed by district personnel were recorded only.

Findings: A total of 433 turkeys were recorded during the project periods; numerous sightings were noted during trapping operations in the winter of 1965-66. Most of the field records were lost when the district office was destroyed by fire. One field map and one legible note sheet was salvaged. Of the data saved, 13 flock sightings (5 flocks of gobblers and 8 groups of hens plus poults) were listed for September, 1965. Total

birds seen were 118. Sufficient data were not saved to draw any conclusions. Except for being listed on one note sheet, (total for the project year), 315 turkeys cannot be further verified.

Prepared by:
Clifford T. Williams
District II Supervisor

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

SPECIAL STUDIES

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: IX-5 Title: Tranquilizer Capture

Period Covered: July 1, 1965 - June 30, 1966

Abstract: A total of forty-one deer were captured and handled using orally administered Tranimul. Thirty-nine of these deer were semi-domestic fallow deer from a private estate. Two of the deer captured were native white-tailed deer. Attempts to use Tranimul to capture native white-tailed deer involved in extensive crop damage met with little success. All work done under this job for the period indicated was devoted entirely to field testing of the handling of animals and administration techniques. One technical paper describing tranquilizing techniques was published during the period covered by this report.

Recommendations: Since a thorough evaluation of the oral tranquilizer Tranimul, as used in capturing and handling wild animals, has been made, it is recommended that investigations of the drug be terminated. It is felt that the information already gathered concerning dosage rates, administration techniques, and care and handling of animals caught, thoroughly covers the span of knowledge required in using this tranquilizing agent for wildlife management purposes. Further testing and evaluation does not seem to be warranted at this time.

Objectives: To use captive deer and various live trapped wild animals to test certain tranquilizing drugs as to dosage rates and techniques of administration.

Techniques Used: All work done under this job for the period covered by this report was dovoted entirely to the perfection of administration techniques and the handling of captured animals. Only the drug Tranimul was used during the testing of these techniques. All deer involved in capture attempts were pre-baited with whole grain yellow corn. Once animals became accustomed to visiting baited stations, bait was supplied on a daily basis. Baiting stations consisted of a small trough approximately 12 x 12 x 2 made of a dark, water resistant fiber-board. Baiting routines were kept consistent once the daily tending of baiting stations became necessary. This was done so as to accustom the animals involved to the presence of man in their feeding areas. Any deviation from this pattern will usually result in the deer altering their feeding schedule. Once good usage of the baited material was obtained, treated corn was put into the bait troughs instead of the usual bait. Tranquilizer was applied to the corn with a starch mixture identical to that described in earlier reports. Ample time was given in order that the full effects of the tranquilizer would be felt by the deer before capture crews moved into the area. This was usually set at between three and four hours after the administration of the treated food. Capture crews consisted of one man operating a headlight, two men with deer catching nets, and one man to assist in holding and tying the deer. Deer catch nets were made in the fashion of giant fish landing nets having a hoop diameter of approximately three to 3½ feet, with the net being made of heavy nylon woven cord tied at four inch mesh intervals, and a depth of 3½ to 4 feet. Only one light was permitted to be turned on in the crew while in the process of stalking drugged animals. This was done so as to conceal the presence of humans as much as possible from the drugged deer. Crew members were cautioned to stay behind the light man in order to increase stalking efficiency.

Deer captured during these attempts were handled in a manner described in previous reports concerning Tranimul.

Findings: A technical paper was presented at the annual meeting of the Southeastern Association of Fish and Game Commissioners. This paper described the techniques used and developed under this job by the research project leader.

Thirty-nine fallow deer were captured with orally administered Tranimul from a private estate near Many, Louisiana. Techniques used were in accordance with those previously described in this report and previous reports. This capturing attempt worked according to plan in all respects and was considered to be highly successful. At a later date, a capture attempt was initiated in an area where approximately 200 deer were inflicting serious damage to a stand of wheat. All phases of this operation went as planned, except that only two deer were captured. It was thought that the reason for this low rate of capture was the fact that capture teams moved into the baited area before allowing sufficient numbers of the deer to enter the field and consume the treated corn. Another attempt to capture deer was made at this same location approximately two weeks after the first attempt. Since it was believed that deer possibly could have been alarmed by the taste of laundry starch on the corn, it was decided to coat all corn used in prebaiting with laundry starch in order to accustom the deer to its taste. Daily baiting of the stations was done with corn treated with starch. The second capture attempt at this location was scheduled to give deer a longer time to enter the field after the drugged bait had been distributed to the baiting stations and it was felt that the problems encountered during the first attempt to capture deer at this location were solved; however, the second attempt at capturing deer from this area was totally unsuccessful for reasons yet unknown. Deer might possibly find the taste of the drug itself objectionable.

Prepared by:
Dan Dennett, Jr.
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

SPECIAL STUDIES

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: IX-12 Title: Tranquilizer Confinement of Birds

Period Covered: July 1, 1965 - June 30, 1966

Abstract: The effects of the oral tranquilizer Tranimul on penned game birds have been studied. Wild bobwhite quail, game farm bobwhite quail, wild black francolin, and game farm black francolin were used as test birds for this study. Several methods of administration were tested and evaluated. Desirable dosage rates were selected by observing the reactions of penned game farm bobwhite quail to measured amounts of Tranimul offered to them in commercial game bird laying rations. Six pens each of wild bobwhite quail, game farm bobwhite quail, wild black francolin, and game farm black francolin were used in this study. Pens containing quail were stocked at the rate of one male and two female birds per pen. Pens containing black francolin were stocked with one male and one female per pen. Each of the different kinds of test birds used in this study were divided into three groups of two pens each. One group received a heavy dosage of Tranimul, one group received a light dosage of Tranimul, and one group was used as a control. Egg production, egg fertility, and egg hatchability for each group was measured. Data obtained during this study suggested that in egg production there was more variation between individual pens than there was between treatment levels of the drug. Tranimul also had no apparent effect on egg fertility or hatchability.

Recommendations: Data obtained from the studies made of the effects of Tranimul on penned game birds was inconclusive in some respects. This was due to the wide variations between individual birds

involved in the test groups used in this investigation. In order to minimize the effect of individual variations occurring in test birds, it will be necessary to increase the number of birds used in each test group. Due to the scarcity of black francolin of both the wild and game farm types previously used in this study, the possibility of obtaining these birds in sufficient numbers for future studies is extremely doubtful. It should also be taken into consideration that game farm bobwhite quail do not react adversely to captivity and, consequently, are probably not as desirable for test birds as would be wild bobwhite quail. Therefore, since wild bobwhite quail can be obtained with relative ease and the response of these birds to captivity is assumed to be quite similar to wild trapped black francolin, it is recommended that a more intensive evaluation of Tranimul be made using wild bobwhite quail as test birds. It is further recommended that only one dosage level be tested during future studies of this drug in order that the test groups involved can be expanded to provide a large sample size for data analysis.

Objectives: The primary objective of this study was to evaluate the oral tranquilizer Tranimul as a possible agent to increase egg production of penned wild black francolin. This would give a much needed boost to the exotic bird program in Louisiana. It was also desired to devise and evaluate methods for administering oral tranquilizer to penned game birds. Egg fertility and hatchability was to be measured and compared to control groups. All of the data obtained during this study was to be used to determine if there were any possible applications of the use of Tranimul in the propagation of certain exotic game birds in a hatchery situation and thus provide additional birds for the exotic bird stocking program.

Techniques Used: All bird pens holding test birds used in this study were of identical design. Each pen was eight feet long, six feet wide, and three feet high. Framing was made using two inch by two inch wolmanized lumber. The entire frame was covered with one inch chicken wire. On the

rear of each pen was an access gate approximately twenty-four inches wide by thirty inches high. This gate was fitted with self-closing spring-loaded hinges and a latch. Also on the rear of the pen was a removable feed and water shelter approximately thirty inches long and twelve inches high with a galvanized iron roof sloping from front to rear. The design of this pen is similar to that widely used in exotic bird propagation programs throughout the Southeastern United States. Each pen was equipped with identical feed and watering devices. Water devices consisted of one quart Mason jars inverted into specially fitted plastic bowls that allowed the water to be metered out on demand. Feeders consisted of galvanized metal troughs approximately twelve inches in length with slide-on galvanized metal tops having circular openings distributed lengthwise on the top so as to allow birds to insert their heads into the troughs. Each pen also contained a shelter hatch in the middle of the pen. This shelter was made by bending a three foot section of twenty-four inch corrugated galvanized iron roofing in the middle so as to form an inverted v-shaped shelter. Twenty-six holding pen units having the design and equipment previously described were used during this study. The entire study area was enclosed in varmint-proof fence eighty feet long and sixty feet in width. This fence was constructed using seven foot creosote posts having three inch tops and sunk two feet into the ground. These posts were placed on eight foot centers. Thirty-nine inch hog wire was attached to the posts with 1 3/4 inch staples. One inch chicken wire having a width of forty-eight inches was fastened to the outside of the fence in a manner so that thirty-six inches of the chicken wire would extend vertically up the fence and twelve inches of the chicken wire would lie on the ground in order that it could be subsequently buried to a depth of approximately four inches. The one inch chicken wire was attached to the underlying hog wire by means of pig rings. An electric fence charger was connected to the entire perimeter of the fence in order that a charged wire could be maintained four inches from the ground and eight inches away from the bottom of the fence. An additional charged line was placed in a position level with a top of the one inch

chicken wire panel and extended out away from the fence approximately four inches. This line was arranged in this manner so as to discourage any varmints that might succeed in passing the first wire from successfully climbing the outside of the fence. Gates used for entering the study area are kept padlocked and charged during the times when someone was not in the pen.

Birds used for the purpose of this investigation were obtained from several sources. Game farm bobwhite quail were obtained from a local game bird farm having an established reputation for clean healthy birds. Wild bobwhite quail were live trapped from several places in the state expressly for this study. Game farm black francolin were supplied by the Louisiana Wild Life and Fisheries Commission Exotic Game Bird Hatchery in DeRidder, Louisiana. Wild black francolin were live trapped from an experimental release area in Cameron Parish. Although these birds are not native game birds to this state, this population has maintained itself long enough to be considered an established population, and birds trapped in this locality are considered to be wild black francolin.

All birds were fed Purina Game Bird Breeder Layena. This is a commercially prepared mixture that is scientifically balanced specifically for laying birds. This is also the feeding ration used in dosage rate trials.

Several methods of treating food material were tried. The first was to sprinkle the unaltered drug directly on the particles of feeding ration. This method proved to be ineffective because of a tendency of the fine particles of the drug to drift to the bottom of the feeder and concentrate there. Next, Tranimul was mixed with black strap molasses and water until the mixture was then enough so that it could be sprayed with a hand operated pump type insect sprayer. Food particles to be treated were distributed in thin layers and sprayed with the mixture just above described. It was hoped that this procedure would allow homogenous distribution of the drug throughout the treated food. After the first two dosage trials were run, there was reasonable suspicion to believe

that the quail were selectively taking the larger particles first, consequently, the larger food particles were removed from the feed ration with a U. S. Standard No. 10 Seive. In this manner, the larger particles of feed could be treated selectively so as to carry the entire amount of tranquilizing agent. This final modification of treatment technique was used for this study.

Dosage rates used in this study were obtained by feeding known amounts of Tranimul to penned game farm bobwhite quail. The tranquilizer was mixed with food material and offered for five-day periods. Test groups used in the determination of dosage levels consisted of two males and two females per pen. One pen was used for each dosage level being tested. The reaction of the birds in each pen was observed daily for the five-day period. All birds involved in dosage level testings were weighed. The initial dosage rate used was calculated at a ratio of .5 mg./50 grams of body weight per quail per day. This amount of drug was administered on the basis that penned bobwhite quail consume 15 grams of ration per day. This was determined during preliminary feeding trials. Subsequent testing levels were determined by doubling the amount of Tranimul used in each immediately preceding test.

Effects of the drug were first noticed in two females receiving a dosage level of 1 mg. /50 grams of body weight per day. These birds showed signs of drowsiness and wing droop. It should be stated, however, that these effects were not notice until the fifth day of the dosage rate trial. This fact suggests that there could possibly be a flaw in the administration techniques. The most obvious of these is that birds could be avoiding the treated food either by sight or possibly by taste. Another possibility would be that birds are selectively picking out the larger food particles first and therefore would not receive the dosage per day that they were intended to receive. Either of these two conditions would allow a buildup of treated food to remain in the feeder to be consumed during the latter period of dosage rate testing trials.

Additional testing showed reactions that were interpreted as a slowdown of normal activity

at the end of two days trial using a dosage rate of 2 mg./50 grams of body weight per day. Birds receiving this dosage level were apparently less active than those not receiving the drug. Since it was the objective of this study to develop a dosage that would not interfere with normal body activity, yet combat the stress experienced by caged wild birds, it was decided to also use a dosage rate that would be just under that level which elicited noticeable change in behavior of the penned birds. Therefore, the dosages used in this study were: Dosage A - 2 mg./50 grams body weight, and Dosage B - 1.5 mg./50 grams body weight.

Treated feed was mixed in 100 pound lots and stored in 30 gallon galvanized garbage cans having waterproof lids. To avoid the possibility of feeding the wrong mixture of feed to a pen of birds, all feed equipment was color coded, as were the feed and water shelters on the individual bird holding pens. For example, Dosage A was placed in a can that was painted green. All pens that were to receive the Dosage A ration had the roof of the feed and water shelter also painted green. All pens to receive Dosage B had yellow roofs on the feed and water shelter and were fed with the contents from a yellow can. Control groups were fed the same type of food except that it contained no Tranimul. Food for this group was kept in an unpainted can. The roof of the feed and water shelter involved in the group was left unpainted.

All eggs gathered during this study were immediately marked with a pencil denoting the cage from which they came. Records were also kept showing when the egg was removed from the cage. Eggs were picked up twice daily, once at 11:00 AM and once at 4:00 PM. Eggs were stored at approximately 60°F for no longer than one week before incubation was begun. Quail eggs were incubated at the Poultry Science Department, Louisiana State University, and francolin were incubated at the Louisiana Wild Life and Fisheries Commission Exotic Game Bird Hatchery in DeRidder, Louisiana. Fertility was checked at twenty-one days. Hatchability was also checked at each of the hatching locations.

Findings:

As previously stated in this report, the primary objective of this investigation was to determine if Tranimul would bring about an increase in egg production in penned game birds. Since the exotic bird propagation program is still in the formative stages, every effort is being made to produce a maximum number of exotic game birds to be released at certain selected locations throughout the state. It has been observed that wild trapped birds produce very few, if any, eggs during the first year of captivity. It is thought that the stress of captivity might possibly be the factor inhibiting egg production during the first year. If some chemical agent could be employed to eliminate or reduce the effects of captivity on wild birds, then the number of eggs annually available for the exotic bird program would be greatly increased. It was hoped that Tranimul would prove to be such an agent.

Egg production data gathered during this study from penned game farm bobwhite quail and penned game farm black francolin was subjected to statistical analysis and this analysis suggested that more variations occurred within individual pens of birds than occurred among treatment groups. A larger number of test birds in the treatment groups would perhaps have minimized the effect of variable egg production within each treatment group. In view of this analysis we must interpret the egg production data from these two groups of birds as being inconclusive. Superficially, however, these data indicate that Tranimul had a suppressive effect on egg production. Egg production data can be found in Tables I, II, and III. Wild trapped black francolin produced no eggs during the period of this investigation.

Egg fertility and hatchability data for game farm bobwhite quail, game farm black francolin, and wild bobwhite quail are presented in Tables IV, V, and VI, respectively.

Because of the small size of the samples involved in game farm black francolin and wild bobwhite quail fertility and hatchability data, no conclusions are drawn. Data obtained from

game farm bobwhite quail eggs suggests that Tranimul had no effect on fertility and hatchability. Only game farm bobwhite quail produced sufficient numbers of eggs to warrant data interpretation.

Prepared by:
Dan Dennett, Jr.
Study Leader

Approved by:
Robert E. Murry
Project Leader

Date ____________________

TABLE I
EGG PRODUCTION DATA
FOR
PENNED GAME FARM BOBWHITE QUAIL

TREATMENT	PEN NO.	TOTAL EGGS PRODUCED PER PEN	TIME OF DAY EGGS FOUND		TOTAL EGGS PRODUCED PER TREATMENT GROUP
			A.M.	P.M.	
			NO. OF EGGS	NO. OF EGGS	
CONTROL	2	107	19	88	226
	3	119	28	91	
DOSAGE A	4	39	7	32	178
	5	139	24	115	
DOSAGE B	1	84	14	70	148
	6	64	15	49	

TABLE II
EGG PRODUCTION DATA
FOR
PENNED WILD BOBWHITE QUAIL

TREATMENT	PEN NO.	TOTAL EGGS PRODUCED PER PEN	TIME OF DAY EGGS FOUND		TOTAL EGGS PRODUCED PER TREATMENT GROUP
			A.M. NO. OF EGGS	P.M. NO. OF EGGS	
CONTROL	20	13	2	11	29
	26	16	1	15	
DOSAGE A	22	10	3	7	15
	24	5	0	5	
DOSAGE B	19	1	0	1	1
	21	0	0	0	

TABLE III
EGG PRODUCTION DATA
FOR
PENNED GAME FARM BLACK FRANCOLIN

TREATMENT	PEN NO.	TOTAL EGGS PRODUCED PER PEN	TIME OF DAY EGGS FOUND		TOTAL EGGS PRODUCED PER TREATMENT GROUP
			A.M.	P.M.	
			NO. OF EGGS	NO. OF EGGS	
CONTROL	9	18	0	18	18
	12	0	0	0	
DOSAGE A	13	21	4	17	23
	14	2	0	2	
DOSAGE B	10	17	1	16	17
	11	0	0	0	

TABLE IV
GAME FARM BOBWHITE QUAIL EGG FERTILITY AND HATCHABILITY DATA BY TREATMENT GROUP

TREATMENT GROUP	PEN NO.	TOTAL NO. OF EGGS INCUBATED	NO. OF INFERTILE EGGS	PERCENT OF INFERTILE EGGS	NO. OF FERTILE EGGS	PERCENT OF FERTILE EGGS	NO. OF EGGS HATCHED	PERCENT OF FERTILE EGGS HATCHED
CONTROL	2 and 3	211	22	10.4%	189	89.6%	169	89.4%
DOSAGE A	4 and 5	168	24	14.3%	144	85.7%	121	84.0%
DOSAGE B	1 and 6	148	18	12.2%	130	87.8%	106	81.5%

TABLE V
GAME FARM BLACK FRANCOLIN EGG FERTILITY AND HATCHABILITY DATA BY TREATMENT GROUP

TREATMENT GROUP	PEN NO.	TOTAL NO. OF EGGS INCUBATED	NO. OF INFERTILE EGGS	PERCENT OF INFERTILE EGGS	NO. OF FERTILE EGGS	PERCENT OF FERTILE EGGS	NO. OF EGGS HATCHED	PERCENT OF FERTILE EGGS HATCHED
CONTROL	9 and 12	16	6	37.5%	10	62.5%	6	60.0%
DOSAGE A	13 and 14	20	10	50.0%	10	50.0%	3	30.0%
DOSAGE B	10 and 11	16	6	37.5%	10	62.5%	5	50.0%

TABLE VI
WILD BOBWHITE EGG FERTILITY AND HATCHABILITY DATA BY TREATMENT GROUP

TREATMENT GROUP	PEN NO.	TOTAL NO. OF EGGS INCUBATED	NO. OF INFERTILE EGGS	PERCENT OF INFERTILE EGGS	NO. OF FERTILE EGGS	PERCENT OF FERTILE EGGS	NO. OF EGGS HATCHED	PERCENT OF FERTILE EGGS HATCHED
CONTROL	20 and 26	24	9	37.5%	15	62.5%	14	93.3%
DOSAGE A	22 and 24	10	6	60.0%	4	40.0%	1	25.0%
DOSAGE B	19 and 21	4	1	25.0%	3	75.0%	2	66.6%

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

SPECIAL STUDIES

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: IX-13 Title: Lead Shot on Catahoula Lake

Period Covered: July 1, 1965 - June 30, 1966

Abstract: One set of paired plots were set up at three different locations on Catahoula Lake. These plots were seeded with four shot sizes. One treatment was made in December, 1965, and another treatment was made in April, 1966.

Recommendations: This project was set up for a six year period; therefore, it is recommended that this job be continued.

Objectives: (1) To determine how rapidly lead shot sinks in the different soils in the lake bed; (2) To determine how rapidly lead shot oxidizes; and (3) To determine what influence the rooting of hogs has on the availability of lead shot to waterfowl.

Techniques Used: One set (2 plots) of paired plots, measuring 20 x 38 feet, was established on three soil types on the lake bed. At each site cattle and hogs were excluded from the fenced plot, but not from an adjacent unfenced plot.

Four different shot sizes (Number 2's, 4's, 6's, and 8's) were seeded in nine of the sub-plots on December 10, 1965, and a similar treatment was made on the other nine sub-plots on April 20, 1966. The December treatment was prior to high water, and the April treatment was after the water had receded from the lake bed, but before initiation of plant growth. Shot size for each sub-sub-plot was randomly assigned and were seeded uniformly over each sub-sub-plot.

Findings: The fences were checked and maintained during the past year. Beginning next year (possibly in October), three sub-plots will be randomly selected for sampling.

Prepared by:
Dewey W. Wills
District IV Supervisor

Approved by:
Robert E. Murry
Project Leader

Date____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

BEAR INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: X-1 Title: Bear Inventory

Period Covered: July 1, 1965 - June 30, 1966

Abstract: One bear range survey was made during this period. Observations were made on a portion of the 83 black bears imported from Minnesota. Known mortality was 21 animals.

Recommendations: It is recommended that this job be continued and that these surveys be made in conjunction with deer range surveys.

Objectives: To compile a record of locations and number of bear for future management.

Techniques Used: The surveys are made by the investigator going into the area, and as he traveled (by boat or vehicle), making stops and walking to gather the necessary information. Stops were made as often as deemed necessary by the investigator. At each stop notes were made as to bear sighted or sign such as tracks, droppings, or clawing or scratching on logs or trees. Local people were contacted to get any additional information needed. A narrative report is prepared on each area surveyed. The reports contain all pertinent information gathered.

Findings: During August and September, 1964, 28 black bear were live trapped in Minnesota and released in Louisiana. The operation was financed by state funds. The release was made in the Atchafalaya River swamp, in Pointe Coupee Parish. All bears were tagged in each ear with a monel tag.

In 1965, other bear releases were made with 55 animals trapped in Minnesota. Forty-six

of these were released in the Atchafalaya River swamp where releases were made in 1964. Nine bear were released in Madison Parish.

Numerous reports of bear being seen and damage complaints throughout the state were investigated. Reports of bear being killed by automobiles or shot were investigated. Some bear showing up around peoples houses, especially in towns, were caught and returned to the original release site. Some of these bear were caught with ropes and tied, some were caught with ropes and put in a hauling crate, and some were caught by use of the Cap-chur gun and sucostrin.

One bear range survey was made on the East Carroll Game Management Area in East Carroll Parish. There are native bear on this area. The lease on this area will expire in August, 1966. The future management of these bear is uncertain.

Of the bear released in 1964, 14 animals have been verified as being killed. Twelve of these were ear tagged. One of those not tagged was killed in an area where there are native bear. Of those killed ten were shot, three were hit by automobiles, and one died of an overdose of sucostrin. Four of the bear were killed in Mississippi. One of these was killed approximately 260 air miles from the release point.

Twelve bear were caught and taken back to the original release point.

Of the bear release in 1965, seven have been verified as being killed. One of these was killed north of Houston, Texas, by a truck. Three were captured and taken back to the original release point.

One bear was captured by personnel of the Mississippi Fish and Game Commission, in Raymond, and put in the Jackson, Mississippi zoo.

Numerous complaints were investigated where bear were reported as being a nuisance.

Prepared by:		Approved by:	
	Louis E. Brunett		Robert E. Murry
	Study Leader		Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

EXOTIC BIRD STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: XI-1 Title: Gum Cove Francolin

Period Covered: July 1, 1965 - June 30, 1966

Abstract: A comprehensive study of the black francolin at Gum Cove, Louisiana was made by a graduate student*. The abstract of his work is included elsewhere in this report.

Call counts were conducted during 1965-66 resulting in an average of 1.25 calling males and an average of 6.9 calls heard per 3 minute stop. The most birds observed was 23 in a three hour period on March 31, 1966. No nests or broods were reported through June 30, 1966, however there are indications that francolin have the ability to bring off late broods. One banded female was trapped during the year. This bird was released in 1961, therefore she was at least five years old.

Recommendations: Continue running the standard call counts that are set up and also make frequent visits and inquiry in the surrounding areas in efforts to determine the present status of the francolin in Southwestern Louisiana.

Objectives: 1. To provide an accurate chronicle of the status of the black francolin in the vicinity of Gum Cove, Louisiana.

2. To learn the life history, habitat preferences, and to develop reliable census methods, trapping methods, and banding and marking techniques.

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*Billy R. Craft, U.S.D.A., Soil Conservation Service, Crowley, Louisiana.

Techniques Used: Much of our information came from direct observations made by a graduate student assistant and from project personnel on the area. During the summer of 1965, a Louisiana State University graduate student spent much of his time on the Gum Cove francolin release area making a thorough ecological study of the black francolin in Southwestern Louisiana. His findings are contained in an unpublished master's thesis entitled "An Ecological Study of the Black Francolin in the Gum Cove Area of Southwestern Louisiana." This thesis was reproduced by the Louisiana Wildlife and Fisheries Commission and distributed to all members of the Southeastern Foreign Game Committee, as well as other interested parties. Call counts were conducted this year as in the past. A winter bait trapping program was carried out during 1965-66 using standard funnel entrance weldwire traps. Numerous visits to the area were made by project personnel in efforts to obtain additional observational information valuable in evaluating the progress of this exotic bird release.

Findings: An abstract of the thesis, "An Ecological Study of the Black Francolin in the Gum Cove Area of Southwestern Louisiana," by Billy R. Craft follows:

"Eighty-seven francolins were caught using two different type traps. Of this total, seven birds died from injuries received in the traps, one was destroyed by a predator, and 14 were retraps. Success of trapping proved to be related to good habitat and consistency in pre-bating.

"Individual field markers and bands were attached to 41 francolins. Twenty-seven neck collars and 14 wing streamers were used in combination with aluminum and colored plastic leg bands. Twenty-three of the marked francolins were observed a total of 42 times. Marked males were more often seen than females.

"Male black francolins are noted for their cicada-like calls. Any elevated positions such as pimple mounds, fence posts, trees and power line poles are utilized for calling. This call was used as a basis for a possible census technique. This thechnique can only be used as

an index to population. Actual number of birds on an area cannot be determined by this method.

"Vegetation was inventoried on the study area on 1 x 3 foot plots along transect lines. A total of 23 transect lines were run and 65 plots inventoried. Some variation occurred in the three areas sampled. Some species, high on percentage of occurrence, would produce an abundant supply of seeds that would probably be eaten by the francolin.

"Four nests were located and all were in or on the periphery of wire grass (Spartina patens). Two of the nests contained six and two had five eggs. Incubation was entirely a function of the female. Three of the nests were destroryed by unknown predators and one was successful."

Francolin call counts made during 1965-66 resulted in an average of 1.25 calling males heard per 3 minute stop on the established call count route. An average of 6.9 calls was heard per stop. Francolins were observed on each visit the writer made. The most birds observed was 23 in a 3 hour period. This was on March 31, 1966. No nests or broods have been reported this spring, however, francolins appear to have the ability to bring off late broods as one immature bird was trapped in early February, 1966. This young bird appeared to be 12-15 weeks old when trapped, therefore by back dating it was hatched in late October, 1965.

A total of 29 francolins was trapped in January and February, 1966. The details of this operation are presented in Job XI-5 under Project No. W-29R-13.

A banded adult female was trapped in 1965. This bird was release in 1961, therefore she was at least 5 years old.

On calling male was observed 17 air miles from the original release site.

Prepared by:

Raymond J. Palermo
Study Leader

Approved by:

Robert E. Murry
Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

EXOTIC BIRD STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: XI-2 Title: Oak Ridge Francolin

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Very few francolin observations were reported. Unconfirmed reports were received of a bird or two ten miles north of Oak Ridge, Louisiana. One injured bird was caught five miles southwest of Oak Ridge. Call counts resulted in no birds heard. The francolin habitat in the release area is believed to have deteriorated due to clean cultivation.

A graduate student* made a comprehensive study on this black francolin release. The abstract of his thesis may be found under the "Findings" of this report.

Recommendations: Continue efforts to determine the status of the black francolin at Oak Ridge and vicinity with the use of call count data, observations, and inquiry.

Objective: To provide an accurate chronicle of the status of the black francolin in the vicinity of Oak Ridge, Louisiana.

Techniques Used: Much of our information was gathered by district personnel and project personnel on the area. Inquiry was made with local residents and previously set up call count route was run and all observations recorded. Graduate student James Emfinger spent a great deal of time on the release area and his findings are presented

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*James Emfinger, Biologist, La. Wild Life and Fisheries Commission, New Orleans, Louisiana.

in an unpublished master's thesis from Louisiana State University, Baton Rouge, Louisiana. The title of his thesis is: "Survival, Dispersal, and Reproductive Success of the Black Francolin in Morehouse Parish, Louisiana."

Findings:

Very few francolin observations were reported. The overall population in the release vicinity is believed to be almost none. A few reports of a bird or two were received from ten miles north of the release area and one adult male was caught by a local resident and brought into the district office on May 20, 1966. This bird was found about five miles southwest of the release site and appeared to be either sick or injured when captured. It was held for one week when it succumbed. Upon examination after death it was determined that the francolin had been injured. Apparently the bird had flown into a wire or other object as its neck was severely bruised. No other unusual marks were found.

Several call counts were run on the standard call count route resulting in no calling birds heard. It was obvious that a breeding density of birds did not exist. Fence row cleaning and clean cultivation has continued over a large portion of the release area thereby rendering most of the area useless as black francolin habitat. This one factor probably had more to do with decimating the population than any other.

The abstract of graduate student James Emfinger's thesis follows:

"This study was established to evaluate the trial liberation of black francolin at Oak Ridge, Louisiana. The survival, dispersal, and reproductive success of the initially released birds were investigated.

"The data collected in this study indicated that few if any of the initially released birds were still present in the population. Five per cent of the sighting recorded in 1964 and none of the sightings made in 1965 were of original birds.

> "The data collected during this study revealed that dispersal from the release site was limited to a short distance. All of the birds observed or heard calling by the writer were within a four mile radius of the release site.
>
> "Population trends were used to determine the reproductive success of the birds. Early morning call count data indicated a decline in the black francolin population. There was a 79.8 percent decline in the average number of birds recorded on the early morning call counts in 1965. Reproduction has been observed or reported every year since the initial release, except in 1965. No nests and only one brood of black francolin were located during the study."

Prepared by:	Approved by:
Raymond J. Palermo Study Leader	Robert E. Murry Project Leader

Date ____________________

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

EXOTIC BIRD STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: XI-3 Title: Junglefowl Releases

Period Covered: July 1, 1965 - June 30, 1966

Abstract: A total of 216 junglefowl was released on four different areas in 1965-66. Crowing cocks were heard quite frequently for a two month period after releases in March but declined through June, 1966. Wide dispersal appeared to be the main factor in not maintaining a breeding density of birds. Two band recoveries were made about fifteen miles from one release site. One was made about 15 months after release; the other about 3 months.

A graduate student* spent a great deal of time on the various junglefowl release areas and much was gained from his studies. His study is entitled "An Evaluation of Red Jungle Fowl Releases in Southern Louisiana." This is an unpublished master's thesis from Louisiana State University, Baton Rouge, Louisiana. The abstract of that thesis may be found elsewhere in this report.

Recommendations: Junglefowl releases in the future should consist of a larger number of birds. Extreme dispersal has become apparent after studying two year's releases. With this in mind it is thought that a suitable release should consist of at least 400 birds.

Techniques Used: The gentle release method is used on all our exotic game birds including junglefowl. A conditioning pen constructed of one inch poultry

*James Turk, International Paper Company, Atmore, Alabama.

netting was built at the release site. The dimensions of the junglefowl pen are usually 30 x 70 feet. Birds were placed in pens in late summer when about twelve weeks of age. One-third of the birds was released in Novmeber and the remaining two-thirds released in early March. The November release was predominately males while in March females were more numerous. The reason for this is the assurance of having females in the area when the breeding season arrives. Junglefowl were released on four area in 1965-66, the same areas as in 1964-65. These are in West Bay G.M.A., Thistlethwaite G.M.A., Idlewild Research Area, and a selected area in St. Helena Parish.

A description of each of the above areas is given in Job No. 3, Project No. W-29R-12. Sixty-four birds were placed in the West Bay pen, sixty-one at Thistlethwaite, forty-one at Idlewild, and fifty at St. Helena.

Findings:

West Bay Area: This year, just as in 1964-65, numerous birds were seen and heard crowing in the release vicinity for approximately two months after the final release in March. It appeared that there was a slow but continuing dispersal of birds away from the release site. By mid-June, 1966, only an occasional bird could be seen. Two band recoveries were made, both of which were about fifteen miles south of the release site. One recovery was from a bird of the 1964-65 release; the other was released during 1965-66. Both of these birds were shot by poachers in May, 1966. No nests or broods have been reported up to the present time.

Thistlethwaite Area: Crowing males were heard a short time after release in March but they apparently dispersed and have not been heard or seen since early May, 1966.

Idlewild Area: Several broods were reported during the 1965 calender year. One brood of downy chicks was found in October, 1965. Up to middle June, 1966, no nests or broods have been reported. There has been wide dispersal and infrequent call-in this spring. A few birds can still be located - most of which have ventured near farmhouses with domestic chickens.

St. Helena Area: Here also a number of broods was reared in 1965. In October, 1965, one observer reported a flock of at least ten junglefowl on the release area near the release pen. This year no broods have been reported. An occasional crowing male may be heard but dispersal is believed to have been wide, and mortality may have had a great decimating effect on the small number of birds released.

The abstract of James Turk's thesis on junglefowl releases in Southern Louisiana follows:

"The objectives of this study were to: (1) evaluate the success of the red junglefowl releases in Louisiana, (2) determine as much as possible about the habits and actions of the bird, and (3) evaluate the habitat these birds utilized.

"The releasing of pen-raised red junglefowl in Southern Louisiana commenced in late 1963 when one release of approximately 40 birds was made. Presently four release sites are being used across the southern part of the state.

"A total of 12 broods, with one to eight young, were observed on two of the release sites in 1965. Seven miles is the fartheast any bird was known to have traveled from the release site. Daily movement of the bird is believed to be within an area one-half mile in diameter.

"Both the male and female have three distinct calls. Crowing by the male was recorded in March, April, and May. Crowing was most intense during the first two hours of the day. Pairing or harem collection began in the early spring. Some type of flock formation was maintained throughout the year.

"The habitat these birds selected was along stream bottoms in upland pine areas. The presence of hardwood litter on the forest floor and complete overhead canopy were important features. Small openings adjacent to stream bottoms were heavily used."

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JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

EXOTIC BIRD STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: XI-4 Title: Other Releases

Period Covered: July 1, 1965 - June 30, 1966

Abstract: Releases of pen-reared black francolins were made on two areas in 1965-66. One bamboo partridge release, and two pheasant releases were also made. Results thus far indicate that black francolins are apparently doing well on one area but have disappeared from the other. Bamboo partridge and western Iranian pheasants appear to have all but disappeared also. The Japanese green pheasant release is still holding on but no reproduction has been reported.

Recommendations: Continue both balck francolin releases during 1966-67 and determine if the occupied area is at carrying capacity on the Bodcau release area. Continue the bamboo release and the Japanese green pheasant release during 1966-67, with larger numbers of birds. Make a final evaluation of the Japanese green pheasant release.

Objectives: To consolidate and evaluate information on the survival, reproduction, dispersal, and habitat preferences of any additional black francolin, bamboo partridge, or various pheasant releases.

Techniques Used: Two black francolin release sites were selected. One was at the Bodcau G.M.A. the other at the Fort Polk G.M.A. One bamboo partridge release site was selected at DeRidder, Louisiana. Additional Japanese green pheasants were released at the Fenton site. A western Iranian pheasant release was made at Melville, Louisiana. Gentle release pens were constructed at Bodcau, Fort Polk and at DeRidder. These pens were constructed of one inch poultry wire with an electric wire placed near the ground to discourage predators. The size of each pen was about 75 x 150 feet.

Birds were placed in the conditioning pens in late summer, 1965. One-third was released in Nov. 1965 and the remainder in March 1966. Supplemental feed (hen scratch) was made available around the pens after releasing the birds.

Black Francolin (Bodcau G.M.A.) - The Bodcau release area is located in extreme northwest Louisiana and consists of approximately 1,000 acres of cleared land surrounded by natural pine woodlands. The cleared area is fenced excluding cattle result-in a heavy grass and weed ground cover. This area was selected because of its apparent suitable francolin habitat, the "island effect" of the cleared land, and to test francolin survival in this northern location. Two-hundred seventy pen-reared juvenile black francolins were placed in the conditioning pen in late summer, 1965 and released in November, 1965 and March, 1966.

Black Francolin (Ft. Polk G.M.A.) - The Fort Polk area is located in the longleaf pine understory type of west-central Louisiana. The prime objective was to test the francolin's ability to survive there and determine whether it could be established in a longleaf pine habitat. One hundred sixty-one pen-reared birds were placed in the conditioning pen in late summer, 1965, and released in November, 1965 and March, 1966.

Bamboo Partridge - The DeRidder release area consists of large grassy openings, dense creek bottoms and thinly wooded upland sites. A total of 70 bamboo partridges was placed in the conditioning pen during the winter of 1965-66 and released in early spring, 1966.

Japanese Green Pheasant - Additional Japanese green pheasants were released at the Fenton release area. A total of 127 birds were placed in the conditioning pen in late summer, 1965, and released in November, 1965. Some birds were released in late January, 1966.

Western Iranian Pheasant - The Melville release area was selected as a release site because it was apparently good pheasant habitat, consisting of cornfields, soybeans, idle weed fields and timbered drainage ditches. A conditioning pen was already present at the release site. After deciding that

this particular pheasant was too difficult to rear in suitable release numbers, the entire brood stock was released along with juvenile birds. The total number of birds on hand was fifty-three. These were placed in the conditioning pen in late summer, 1965 and all released in November, 1965.

indings:

Black Francolin (Bodcau G.M.A.) - The black francolin release on this area looks promising. Good survival was indicated throughout the winter after a November release and was still in evidence through June, 1966. Many calling males may be seen and heard daily on the release area. One francolin nest containing six eggs was located while bushhogging in a mature wheat field. It was found on June 7, 1966, and one week later was broken up by a predator. At the time of this writing this release looks promising. One of the important factors is the island effect of the cleared portion of this area. The surrounding woodlands serve as a barrier against dispersion, which we feel is the greatest detriment to successful establishment of introduced birds.

Black Francolin (Fort Polk G.M.A.) - At present, this black francolin release does not look as promising as the Bodcau area. Survival appeared to be good after the fall release. Droppings and dust beds were observed in the release vicinity and an occasional bird was observed. As time progressed, the amount of sign decreased and at the present time none can be found. It appeared that the birds gradually dispersed. Some land clearing and plantings in the immediate release area are presently being made in efforts to hold birds in these choice habitats. Plantings consists of 20 foot wide alternate strips of sorghum and winter wheat. Some patches of browntop millet are also being planted in the release vicinity.

Bamboo Partridge - Released birds were observed a number of times near the conditioning pen for a two month period after release. Some calling was also heard in the release vicinity. No nests or broods have been reported. Quite a lot of predation was in evidence near the conditioning pen immediately after release.

Japanese Green Pheasant - A disease outbreak occurred in the pheasant conditioning pen resulting in heavy mortality. Specimens were sent to the Southeastern Cooperative Wildlife Disease Study for necropsy to ascertain the cause of death. The report from this necropsy indicated the pheasants harbored heavy burdens of the nematode, (*Capillaria contorta*), in the crop and also another nematode in the small intestine. One other menatode, (*Heterapia gallinerum*), was found in the ceca. Bacterial cultures from the pheasants yielded two pathogens: (*Salmonella newport*), and a paracolon of the Arizona group. It is believed that heavy mortality was due mainly to the Salmonella.

Only about thirty birds were actually released on this area in 1965-66.

One pheasant crow count was conducted on the area resulting in two cocks observed and two calls heard. No nests or broods have been reported.

Sight records indicate that birds have dispersed about two miles south of the release site. Survival appeared to be good considering the small number of birds released in 1965-66.

Western Iranian Pheasant - The actual number of birds released was forty-seven. Since releasin in November, 1965, a good number of birds was observed throughout the winter. Some crowing was heard in early spring but observations decreased. An observation of one pheasant was made recently on the release area. No nests or broods have been reported on this area.

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JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

EXOTIC BIRD STUDY

State of: Louisiana

Project No.: W-29R-13 Name: Statewide Wildlife Investigations

Job No.: XI-5 Title: Wild Trapped Francolins

Period Covered: July 1, 1965 - June 30, 1966

Abstract: At the Gum Cove, Louisiana release area, black francolins took bait readily and 29 were trapped using standard funnel entrance type traps. Head-scalping was not prevented by placing burlap overhead which also deterred birds from entering traps. Only one francolin was trapped in 37 trap days using burlap covered traps. Using uncovered weldwire traps, a total of 28 was caught in 83 trap days for a success of 1 bird: 3 trap days. One male died of injuries received while in a trap and fifteen birds (7 males, 8 females) were moved and released near Melville, Louisiana in St. Landry Parish. The remaining 13 were banded and released at the trap sites. Trapping was terminated after only 10 days due to unfavorable weather conditions.

Recommendations: Tests should be made into the use of nylon netting on the sides and possibly the tops of traps in an effort to eliminate head-scalping which is common to francolins captured in weld wire traps. Bait trapping operations should continue again this winter with a goal of 50 pairs to be released on the Melville, Louisiana release area.

Objectives: 1. To develop and test trapping techniques for the black francolin (Francolinus francolinus). 2. To provide a suitable number of wild-trapped black francolins for new releases.

Techniques Used: Beginning in late January, 1966, trap sites were selected and prepared for trapping on the Gum Cove francolin release area. Sites selected were mostly under dense MaCartney-rose bushes

which thrive on the higher ground at the Gum Cove release area. Previous studies showed that birds used these vegetative clumps as escape and loafing cover during the winter months. Trap site preparation included cutting a tunnel into the wiry rose bushes large enough for a trap to be placed in. This was accomplished using a machete and long-handled pruning shears. A garden hoe was used to clean and level the ground sites. Hen scratch (a mixture of wheat, milo, and cracked corn) was used for bait and was placed on the trap site and scattered under the rose bush. Prebaiting was carried out daily for two weeks prior to trapping. Traps used were standard funnel traps but of two dimensions. One was 30 inches wide, 32 inches long and 12 inches high and had two funnels 6 inches high, 6 inches wide and 8 inches long fastened on opposite sides of the trap. The other was 28 inches wide, 32 inches long, and 8 inches high. Only one entrance funnel - 4 inches x 4 inches x 6 inches long, was placed on one side. Both type traps were constructed of 1 x 2 inch mesh weld wire and fastened with "Valclips." All traps had an 8 x 10 inch hinged door on top for bird removal. Burlap covered traps were used in an effort to prevent head-scalping which occur with francolins in weld wire traps. It was thought that birds leaped violently and beat their heads against the top of the traps. Burlap was attached and stretched across and 2 inches below the wire top of traps. These covered traps were used four days when it was decided to remove the burlap covering. Uncovered traps were then used. Traps were set at daylight and run twice daily (11:00 AM and 5:00 PM). Sets were made only at sites where birds were known to frequent. They were turned upside down on the evening run to prevent accidental captures. The largest number of traps used in one day was twenty-one. A verbal agreement was made with the landowner to remove only a portion of the birds trapped. All birds trapped were banded, if not already marked, and either released at the trap site or released on a new area. This new release area is located in St. Landry Parish just north of Melville, Louisiana. Two holding pens, 12 foot square and made of 1 inch mesh poultry wire, were construction at the release site. Food, water, and cover was made available inside each pen.

Findings: Although blackbirds, other birds, and animals consumed some of the bait, francolins located and used the bait readily. Two weeks of prebaiting was ample time for francolins to learn the various baited sites. It was determined that either the single or double entrance funnel trap was effective for trapping francolins but the smaller entrance funnel did prohibit escapees and did not seem to deter birds from entering.

Previous francolin trapping efforts showed that birds frequently scalped themselves while in weld wire traps. It was assumed that birds leaped violently beating their heads against the top of the trap. An effort to remedy this was attempted by attaching burlap across the top of each trap. These proved to be very inefficient traps. Only one francolin was caught in four days of trapping (37 trap days). Also, very few blackbirds or other birds were caught indicating that birds were extremely hesitant about entering covered traps. The one francolin that was caught exhibited a scalped head and after observing it in the trap for several minutes it was determined that head injury was the result of the bird pushing his head out of the 1 x 2 inch weld wire than pulling it back, thus scraping the top of his head on a horizontal wire. Future trapping was carried out using uncovered weldwire traps.

The remaining six days of trapping resulted in a catch of 28 francolins utilizing 83 trap days of effort. The largest number of traps used in any one day was twenty-one. The most birds caught in one day was eight. On four occasions, more than one francolin was in a trap. Three of these instances consisted of two females and the other consisted of a male and female. Many blackbirds were trapped and this no doubt deterred francolins from entering. There were many instances of a francolin near a trap full of blackbirds. On one occasion, a male francolin was in a trap with a dead redwing blackbird. The blackbird exhibited signs of being pecked all about the head region. A female francolin was trapped with several bobwhite quail but there were no visible signs of violence. A number of francolin retraps was recorded. Eighty-three trap days yielded 28 black francolins; therefore

it required three trap days to catch one francolin. One male died of injuries received while in a trap and 15 (7 males and 8 females) were moved and released near Melville, Louisiana in St. Landry Parish. The remaining 13 birds were released at the trap sites. Unfavorable weather prevailed during the trapping period and trapping was terminated in early February. Only one francolin sight observation has been made on the Melville release area since the birds were released. Numerous trips have been made near the release site but no calling has been heard. Obviously, this first release consisted of too few birds, and it is believed that future wild bird releases should consist of at least fifty pairs.

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